

'WHAT'S NEW FOR '52' ON TAP AT SHOW

INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week
More Sports Stories
Catholics Are Loyal
Protect Your Capital
Fugged Life
Cag of the Week
Nonsense of the Week
Quotes of the Week
Dirty Trick
Voice of Experience
Sad Sack
Comfort from the Bible
Add Sales Stories

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AIR CONDITIONING & REFRIGERATION News

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Ringmaster!



L. C. McKESSON

Vice president in charge of sales for Ansul Chemical Co. and the chairman of the Show Committee for the 7th All-Industry Refrigeration and Air Conditioning Exposition.

Rulings Relieve Tax Bite on Some Parts

WASHINGTON, D. C.—Rulings and interpretations on the application of excise taxes made by the Bureau of Internal Revenue in answer to specific questions passed along by Refrigeration Equipment Manufacturers Association clarify some points that may have been in doubt.

The rulings relate to refrigerator electrical wiring systems and testing cords; refrigerated display cases and walk-ins and reach-ins of over 25-cu. ft. capacity; condensing units; and replacement parts for room air conditioners.

"We have been under the impression," explained one manufacturer, (Concluded on Page 53, Column 1)

RACCA Asks Trade Practice Rules for Refrigeration Field

NEW YORK CITY—A petition to the Federal Trade Commission asking for the establishment of trade practice rules in the refrigeration and air conditioning industry, has been filed by the Refrigeration & Air Conditioning Contractors Association.

The petition was filed by RACCA through George T. Howe, Chicago contractor and chairman of RACCA's Unfair Trade Practices Commission, and was prepared by the general counsel of RACCA, Schneider & Edelstein, of New York City.

As drawn up by RACCA, the petition for trade practice rules is aimed primarily at ice cream, beverage, and frozen food producers. It states that "ice cream manufacturers will buy refrigeration equipment, will service and install such equipment below cost or for no cost, merely to sell their ice cream and dairy products."

The same sort of activity is true for soft-drink manufacturers, who give away or sell below cost, beverage coolers, states the petition. With (Concluded on Page 45, Column 1).

Artkraft Forms New Universal Appliance Firm

LIMA, Ohio—A new corporation called Universal Major Appliances, Inc. has purchased the Universal electric range, washer, and water heater lines from Landers, Frary & Clark, it was announced here recently.

The new firm was formed by the Artkraft Mfg. Corp. to manufacture and market these lines, the Universal refrigerator line previously made by Artkraft for Landers, Frary & Clark, and a line of freezers.

An Artkraft affiliate, Refrigeration Sales Co., which previously marketed the Universal line of refrigerators will be absorbed into the new concern.

These facts were made known in a joint announcement by Richard L. White, Landers president, and Morton L. Clark, Artkraft president.

Clark will act as president of Universal. (Concluded on Page 4, Column 4)

Job Outlook Good for Refrigeration, Air Conditioning Mechanics

WASHINGTON, D. C.—The employment outlook for refrigeration and air conditioning mechanics is upward over the long run, according to a new government handbook.

However, the handbook says, this trend "may be interrupted during the early fifties if defense preparations make it necessary to cut back production of civilian refrigeration and air conditioning equipment."

"In any event, it probably will be difficult for beginners to enter the trade."

"Commercial and industrial refrigeration and air conditioning work is (Concluded on Back Page, Column 1)

Show Facts In Brief

Place: Navy Pier, Chicago.

Show Hours:

Monday, Nov. 5

2 p.m. to 10 p.m.—Open to all.

Tuesday, Nov. 6

10 a.m. to 6 p.m.—Open to all.

Wednesday, Nov. 7

12 noon to 10 p.m.—Open to all.

Thursday, Nov. 8

10 a.m. to 4 p.m.—Open to all.

Who will be admitted? Anyone with a legitimate connection with the industry. (Bring a business card or business letterhead, if you have one, to certify your connection with the industry.) Registration (at no charge) will be at the entrance to Navy Pier.

(See page 8 for Master Program of events in connection with the Show.)

NPA Considers Direct Allocation Of Repair Parts

WASHINGTON, D. C.—Direct allocation of commonly used parts and components made of steel, aluminum, and copper is being considered by the National Production Authority to ease the difficulties service firms are having in obtaining them.

NPA officials offered the idea at a recent meeting of the electronic parts and components industry advisory committee.

They said they may issue an order calling for parts manufacturers to set aside a certain percentage of their production for the exclusive use of distributors. The set-asides would be allocated according to the amount each distributor has been using and according to the geographical situation.

Provision for an inventory limitation based on the historical sales pattern during a base period is also under consideration.

A separate order would give parts retailers the right to automatically certify orders for the parts and components they sell to consumers. The consumer would need no authority to purchase them.

Straw Vote at Show To Poll Sentiment on Presidential Choice

Who is the man that members of the refrigeration and air conditioning industry want as the next President of the United States?

The man who will be the favorite of those attending the All-Industry Show is to be determined by a straw-vote election being held by AIR CONDITIONING & REFRIGERATION NEWS at its exhibit space (429) at the All-Industry Show.

Visitors to the All-Industry Show will get an "election notice" ticket upon registration, and this will entitle them to one ballot for the man they want to see elected President of the U.S. in 1952.

Balloting will start as soon as the Show opens, and continue until early Wednesday night.

Those voting will also compete for a \$50 cash prize, to be awarded the individual who names the winner and guesses (or comes closest to) the total number of votes the winning candidate receives in this straw vote.

Rehard Joins National Board of Boiler Inspectors

COLUMBUS, Ohio—John C. Rehard, formerly chief safety engineer for the city of Detroit, has joined the National Board of Boiler and Pressure Vessel Inspectors as assistant to C. O. Myers, secretary-treasurer. The appointment was effective Nov. 1.

Frank Drogosch has been named acting chief safety engineer to succeed Rehard in Detroit.

Long associated with Detroit's 'De- (Concluded on Page 4, Column 5)

'First' Showings Of Many Items Are Scheduled

Over 200 Manufacturers At Navy Pier Showing Lasting Through Nov. 8

CHICAGO—Holding the promise that its individual exhibits will introduce a host of new and improved products for sale and application by the industry, the 7th All-Industry Refrigeration & Air Conditioning Exposition opens Monday, Nov. 5, at Navy Pier here for a four-day run through Thursday, Nov. 8.

With well over 200 manufacturers taking a record amount of exhibit space, as reported by L. C. McKesson, chairman of the Show Committee, those attending the Show will be treated to the greatest display of equipment and components in the history of the refrigeration and air conditioning industry.

Sponsored by the Refrigeration Equipment Manufacturers Association, the All-Industry Refrigeration

Whether you are an All-Industry Show visitor or a stay-at-home, you'll be interested in the advance notice of the new and improved products to be introduced at the Show, which are described by the NEWS in its run-down on exhibits. This information will be found on pages 14, 15, 18, and 19. Starting with the Nov. 19 issue, the NEWS will cover with story and pictures the new products exhibited.

ation & Air Conditioning Exposition is open to anyone who has a legitimate connection with, or interest in, the industry and its products. Registration is at the entrance to Navy Pier, and there is no registration or admission charge.

The last All-Industry Show, held at Atlantic City in November of 1949, was termed "the first true (Concluded on Page 4, Column 4)

Carbon Tet Production Up 22% In 1st 6 Mos. of '51

WASHINGTON, D. C.—Production of carbon tetrachloride, an important ingredient in the production of "Freon" refrigerants, increased 22% in the first half of 1951 as compared with the first half of 1950, according to a recent report by the National Production Authority on chemicals production.

In the same period, production of chlorine gas increased 21%, the report stated.

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Story of the Week

"Red" Smith, sportswriter for the New York Herald-Tribune, always gets laughs when he tells about the sports columnist who had too good a time during the racing meet at Saratoga.

Realizing that this famous columnist was too drunk to file his daily story, an old friend in the Postal Telegraph office at Saratoga dispatched a story for him every day—concocting it from the stories filed by other reporters covering the meet.

On the fourth day, the columnist who had been "protected" wove his way uncertainly to the Postal Telegraph office, and thrust a wavering forefinger into the face of the manager.

"If my story isn't better tomorrow," he warned, "I'll give my business to Western Union."

More Sports Stories

Although this collection of anecdotes about sports figures is intended to be funny, professional sports aren't funny at all. They're America at its best.

Interest in big-time baseball, football, and the like unite all factions of the nation. The union dues payer and the chairman of the board are brothers under the skin at a ball game. Races melt and tensions evaporate under the benign sun of sports. Furthermore, professional sports prove over and over again that our country is, in truth, a Land of Opportunity for all.

Take Babe Ruth. He first saw the light of day in a waterfront tavern in Baltimore. He was brought up in a school for wayward boys. Yet the Babe earned about \$2,000,000 during his fabulous career, and became the idol of our Age.

Pitcher Bob Feller was a young farmhand in Iowa. In a few short years he was making \$80,000 a year. Dizzy Dean, an uneducated cotton picker before he began fogging his fast one across the plate, lists his earnings in the six figure class. Boxer Joe Louis won purses totaling nearly \$4,000,000 in the ring, after leaving a \$5-a-day job on a production line in a Detroit plant. He had been a cotton picker, too.

Also in the millionaire category are ex-heavyweight champions Jack Dempsey and Gene Tunney. Dempsey traveled frequently via the boxcar before his rise to glory in the arena. In other words, he had been a tramp. Tunney had held down a \$28-a-week job as a shipping clerk. When he retired from the ring, he had a million dollars and a beautiful wife who is listed in the Social Register.

Pro football was the springboard to wealth and business success for small-town westerners like Sammy Baugh, Bronko Nagurski, George and Frank Christensen, Bob Reynolds, and many another lad of humble origins.

Seated together and cheering together in the stadium at any football or baseball game anywhere, any time, are employers and the employed. Daughters of the American Revolution and Judy O'Grady, socialites and immigrants, people of all races and colors and beliefs. In the love of sports, all America unites. Take me out to the ball game!

(Concluded on Page 25, Column 1)

Some Firms Can Take Markup on New Excise Taxes

WASHINGTON, D. C. — Wholesalers and retailers who normally treat the excise tax as part of their cost for markup purposes will be allowed to take a percentage markup to cover the newly levied 10% manufacturers' excise tax on the appliances affected, the Office of Price Stabilization announced recently.

(The tax took effect on some new items on Nov. 1.)

But those resellers who customarily pass through the excise tax on a dollar and cents basis and do not include it in their cost for markup purposes, must continue to follow that practice, the agency added.

In cases where the excise tax has been reduced or eliminated (mainly in sporting goods lines and industrial and commercial appliances) ceiling prices will have to be reduced to reflect the change by the same methods as they were established (either by percentage markup or dollar and cents pass through).

Meanwhile, the Joint Committee on Internal Revenue Taxation explained that the new tax law that took effect Nov. 1 removed the 10% manufacturers' excise tax from all electric, gas, and oil appliances of a non-household type, except in the case of electric direct motor-driven fans and air circulators, where only the industrial type were exempted.

The committee indicated that the effect of the tax at the retail level would be an increase of about 6% in the retail price.



Backbar Freezer Lets Fountain Store Meats

WACO, Tex.—A 6-ft. long food freezer built in the center of a fountain backbar has proved to be a profit building asset for Ottis Stahl, owner of the Ottis Stahl pharmacy here.

Stahl ordered the freezer custom built to permit the fountain to keep on hand large quantities of meats, poultry, seafood, and other items at -10° F.

Three stainless steel doors in the center of the backbar open upon the 22-cu. ft. freezer, which is powered by a 1-hp. compressor, located in the basement.

In this space, Stahl can readily

keep from 60 to 75 fryers, a stock of roasts, frozen seafoods, etc., enough to meet any sudden "rush" on food service facilities.

"We are able to keep a lot of foods on hand at these sub-zero temperatures for indefinite periods," Stahl said. "This means that we can serve the late-hours customer a complete chicken dinner or the seafoods he desires on a short-order basis, even when the kitchen is closed," the Texas restaurant proprietor declared.

Savings in "leftovers" which may be frozen and kept indefinitely, will alone pay the cost of this added refrigeration, Stahl added.

REMA Milk Cooler Group Approves Standards

CHICAGO—A group of milk cooler manufacturers recently adopted in final form a proposed commercial standard for electrically driven, mechanically refrigerated, can-type milk coolers.

The group, which carried on its work under the sponsorship of the milk cooler section of the Refrigeration Equipment Manufacturers Association, will now route the approved standard through the REMA general standards committee, the board of directors, REMA council, and the ASRE standards committee for further review and approval.

At a recent meeting here, the REMA milk cooler section elected Aubrey A. Davis of Wilson Refrigeration, Inc. as chairman and H. F. Hildreth of Westinghouse Electric Corp. as vice chairman. It also decided to expand its statistical program by collecting annual data on the shipments of three types of milk coolers to sales outlets by states. All manufacturers of milk coolers are invited to participate in this program, whether they are members of REMA or not.

The initial period to be covered is from July 1, 1950 to June 30, 1951.

Refrigerated Storage Preserves Batteries

TOLEDO—Storage of automobile batteries at 0° F. to avoid the expensive loss of charge when supplies accumulate before seasons of greatest sales is a new type of business which the Great Lakes Terminal Co. here is promoting. Lou Ashenbrenner informs the Refrigeration Research Foundation.

Storage period is expected to run about three months. Although 0° F. is thought to be the best temperature, the refrigerated warehouse is also conducting experiments with storage of the automobile batteries at 32° and -10° F.

Radioactive Air Supply, Exhaust To Be Discussed

WASHINGTON, D. C. — Problem of air supply and exhaust will be one of the subjects of discussion at a two-day symposium on "Laboratory Design for Handling Radioactive Materials" to be held at the National Academy of Sciences here Nov. 27 and 28.

Sponsored by the Atomic Energy Commission and the American Institute of Architects, the symposium will be conducted by the Building Research Advisory Board.

Last 7 Years Sees Big Improvement In Freezers Testing Lab. Reports

NEW YORK CITY—How the operating efficiency of home freezers has improved in the past seven years was noted recently by the Electrical Testing Laboratory here. Reviewing the situation, the laboratory said:

"Seven years ago, when home freezing of food was still something of a novelty, freezers were offered for sale with performance such that, in some models, the freezer might be full of food but it would not be full of frozen food.

"Temperature surveys made at that time by ETL showed in several cases as much as 40° F. difference in temperature between the under-surface of the lid and the floor of the storage compartment.

"Several designs yielded temperatures well above the freezing point at a level 1 in. below the lid result, the top stratum of 'frozen' food presently became 'unfrozen.'

"It is seldom, indeed, that a freezer of recent design shows such a defect. In a group of different brands recently tested, only one model showed a temperature higher than 15° F. at a level 1 in. below the lid, with ambient room temperature at 90° F.

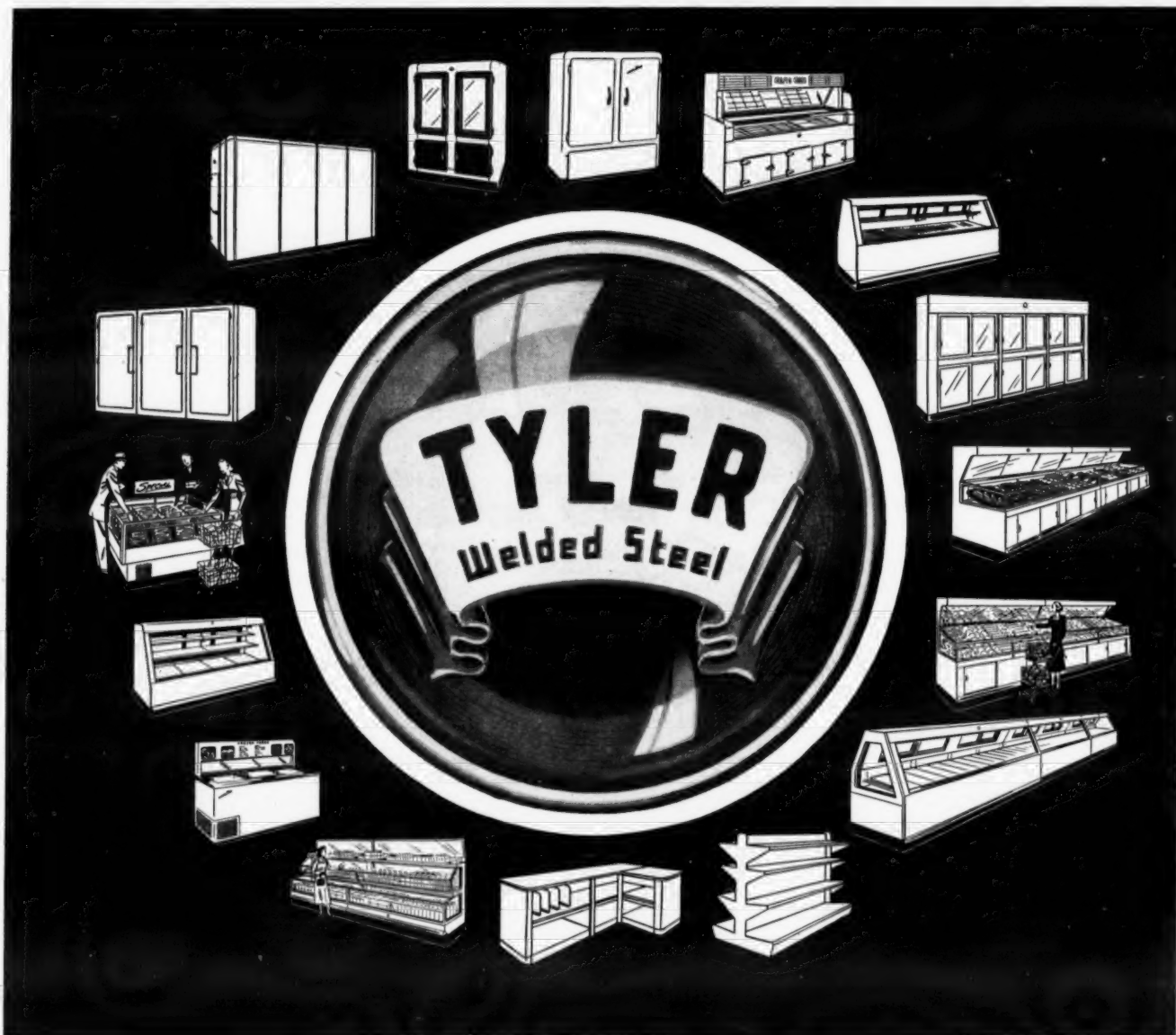
"Halfway down all of them registered below 0° F. This was true whether the storage space was entirely empty or packed tightly full. "Obviously the modern designs refrigerate the walls more completely, and are better insulated.

"Furthermore, (and this is an important consideration) if there should be a power shortage, the time is greatly extended, in comparison with old models, before the top stratum of food warms up above the 'unfreezing point.'"

Grocery Manufacturers Use Air Conditioning To Assure Quality Control

NEW YORK CITY—Air conditioning was cited by Paul E. Willis, president of the Grocery Manufacturers of America, Inc., as one of the quality controls used by association members to win the complete confidence among housewives.

Willis noted the use of air conditioning in such processes as baking, where temperature and humidity alter product quality. He said quality control of food "from the farm to the table" is responsible for reduction of consumer complaints in one baked goods industry by 58% in three years.



The complete line of display and storage refrigerators!

TYLER-MADE refrigerators of various types are now available for an extremely wide variety of applications in many fields. Over 400 items in the complete Tyler line meet the perishable-display-and-storage requirements of any food store... super-market... delicatessen... restaurant... hotel... hospital... institution... drug-store... bakery... florist shop... bar... tavern... motel... school, etc.

Tyler representatives are cashing in on a constantly widening list of prospects for sales. And their customers know that IF IT'S TYLER-MADE IT'S RIGHT—in price, design, value and utility! Tyler Fixture Corporation, Niles, Michigan.

FOUR GREAT PLANTS



NILES, MICHIGAN



COBLESKILL, NEW YORK



SMYRNA, DELAWARE



WAXAHACHIE, TEXAS



"JOB TAILORED" means money saved

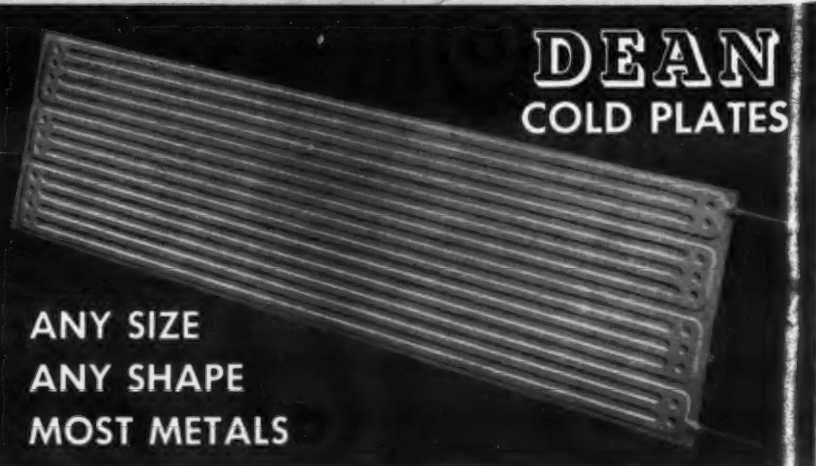
• Your cold plate dollar goes further when you specify DEAN because you eliminate waste! You get a plate in the *exact* size you need... not one that is almost right, but a plate that accurately meets your specifications. You name the size—you name the shape... we make it!

You can have plates in zinc metalized steel, stainless steel and in other metals. You can get cylinders, U's, angles, tanks, etc., and also plates for baudelot-type coolers.

Using DEAN "job tailored" cold plates means dollars in your pocket on every job. Try them!

SEND FOR TECHNICAL DATA BOOK

Get the details on DEAN Cold Plates for ice cream cabinets, locker plants, soda fountains, farm milk coolers, farm freeze cabinets, low temperature test rooms, frosted food refrigerators, window displays, food counters, refrigerated transportation and subzero applications for industrial chilling.



ANY SIZE
ANY SHAPE
MOST METALS

DEAN

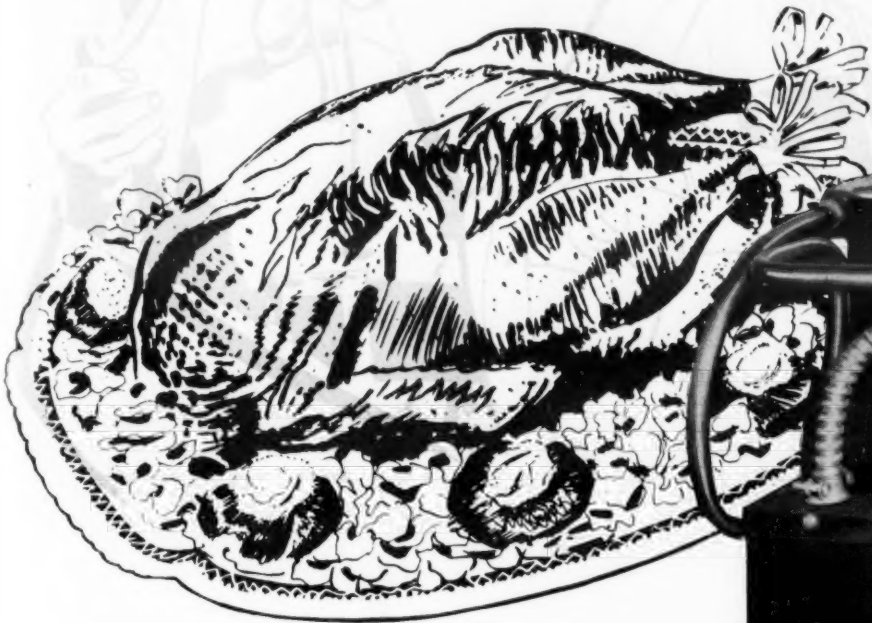
PRODUCTS, INCORPORATED
1042 DEAN ST., BROOKLYN 16, N. Y.
STerling 9-5400

VISIT US AT REMA CONVENTION IN CHICAGO, BOOTH NO. 203

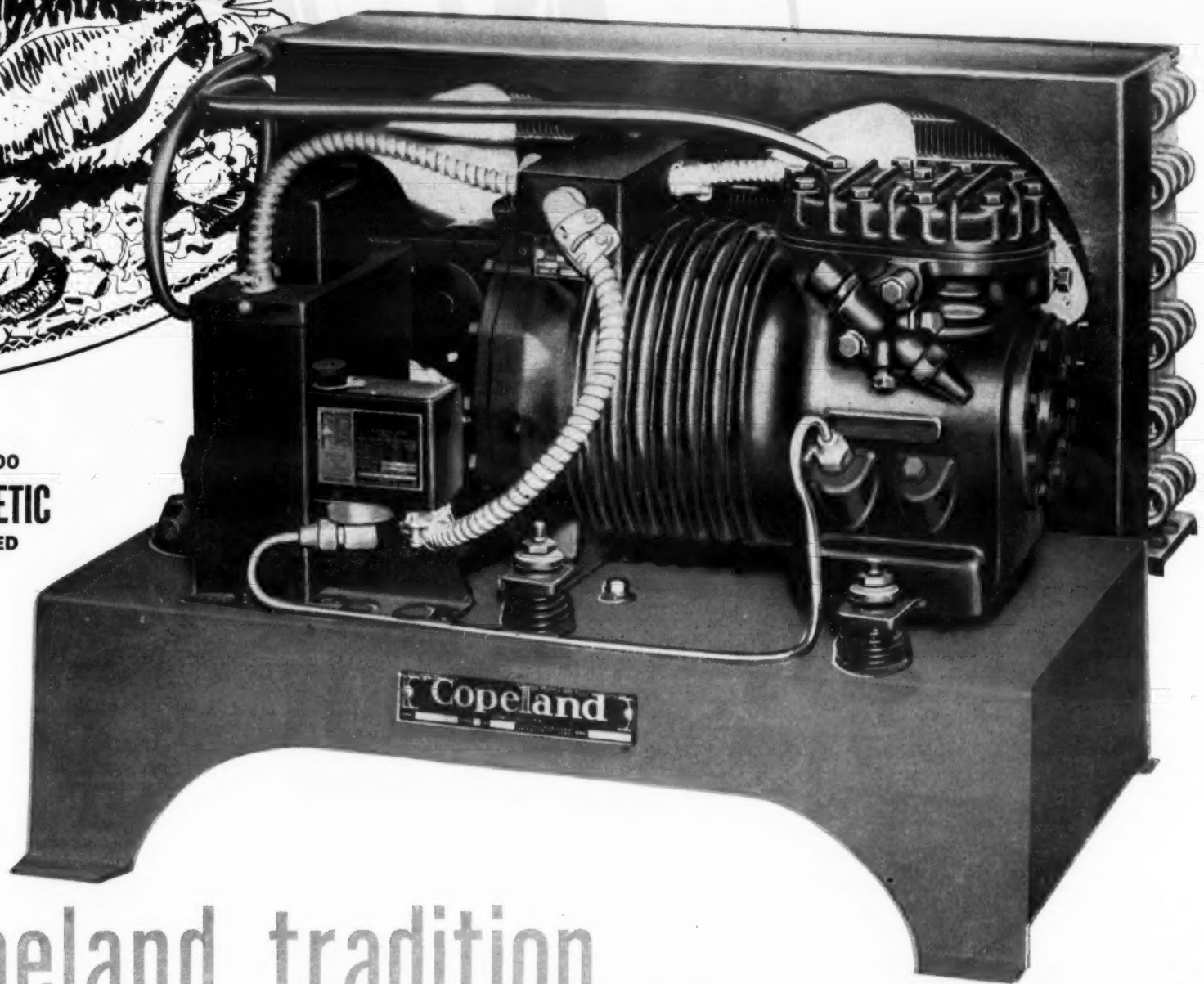
What's behind a tradition?

The traditional American Thanksgiving traces back to Governor Bradford, first governor of Massachusetts Colony.

He proclaimed December 13, 1621, a day of Thanksgiving in gratitude for a plentiful harvest. Thereafter it was observed intermittently (sometimes twice a year) until 1864. Since then, the spirit of Thanksgiving and the symbolic turkey dinner have remained an American custom, celebrated the fourth Thursday of each November.



MODEL Z-100
COPELAMETIC
ILLUSTRATED



the Copeland tradition...

based on dependable, field-proved performance

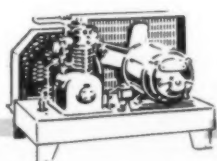
Each new Copeland refrigeration unit adds to the tradition behind the Copeland line. Traditionally *first* with units that *last*, Copeland has grown up with automatic electric refrigeration. The Copeland organization, with your help and suggestions, has pioneered the finest in refrigeration.

There's no moss on Copeland's tradition . . . it is shiny and new and stands foursquare behind continuing improvement. One of the longest steps forward was the introduction of COPELAMETIC . . . the ACCESSIBLE hermetic . . . in 1941. Realizing that 9 out of 10 service calls were due to belts, seals and improper lubrication . . .

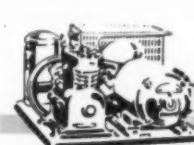
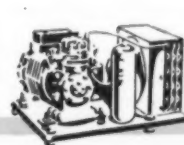
COPELAMETIC eliminated these causes of refrigeration failure!

Copeland engineers, steeped in tradition but not bound by it, made this hermetic ACCESSIBLE! Now . . . valve plate, pistons, etc. can be serviced on the spot. When a COPELAMETIC is shipped to you there is never a need to return it to the factory. More than 1,000,000 are in service today!

Air-cooled, remote COPELAMETICS range from 1/4 HP through 3 HP. There are water-cooled, remote units from 1/3 HP to 7 1/2 HP, inclusive. There are self-contained COPELAMETICS for all applications.



Copeland
DEPENDABLE *Electric* REFRIGERATION



REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC) WATER COOLERS

COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO

Kramer Trenton Appoints Segal General Manager

TRENTON, N. J.—Kramer Trenton Co. has announced the appointment of S. Charles Segal as general manager.



S. Charles Segal

Segal has been affiliated with Kramer for 15 years and as its chief engineer for the past 11 years. As general sales manager, he will also direct the activities of the firm's advertising department. Segal has made significant contributions to the many advancements in heat transfer research in Kramer Trenton research laboratory. Holding an engineering degree from the Drexel Institute in Philadelphia, and a teaching degree from State Teachers college in Trenton, he has also been a member of the faculty at Temple university in Philadelphia.

A registered professional engineer, Segal has taken an active part in engineering organizations. He has had some 14 engineering papers published in various technical periodicals, including chapters in the Refrigeration Data Book and two ASRE Application Data Bulletins. Chairman of the ASRE Heat Transfer Committee for several years, he is now a member of the Heat Pump Committee and the Committee for Calculations, Charge, Tables, etc.

Segal is also an active member of the REMA and ACRMA Joint Coil Committee.

Oil Can and Service Sign Build Goodwill

LANSING, Mich.—When servicemen from Arctic Refrigeration Co. finish a repair job, they leave with the customer two items that have built considerable goodwill for the firm, according to Gunther W. Joseph, owner.

First they hand the customer a can of Gulf lubricating oil, bearing the imprint of Arctic Refrigeration Co.

Along with it they give him a sign to be posted near the newly repaired equipment.

This sign reads:

"Oil your motor and save your money.

"If machine is not operating, check following before calling—

"Fuse at machine blown,

"Main switch pulled,

"Machine switch pulled,

"Main fuse blown,

"Water shut off."

Then follows the telephone number and address of the Arctic Refrigerator Co.

Perfection Stove Cuts Prices In Move To Increase Sales

CLEVELAND — Perfection Stove Co. has cut prices, at least for the month of November, to help spark a special sales campaign.

The across-the-board cuts average about 10%, it was learned from J. H. Rasmussen, recently appointed vice president in charge of appliance sales.

Carrier Elects Bynum As Executive Vice Pres.

SYRACUSE, N. Y.—The election of William Bynum as executive vice president of Carrier Corp. was announced recently by Cloud Wampler, president.



William Bynum

technic Institute, where he specialized in electrical engineering.

From 1931 to 1945, Bynum served in engineering, sales, and management capacities in the south and midwest.

He thereafter became head of the direct sales department with headquarters here and subsequently was placed in charge of Carrier's entire marketing program, according to the announcement.

NEMA To Continue Gift Campaign on Housewares

NEW YORK CITY—Plans for the continuation of the Electric Housewares Gift Campaign for 1952 have been approved by the Electric Housewares Section, National Electrical Manufacturers Association, it was announced by an industry spokesman.

All-Industry Show --

(Concluded from Page 1, Column 5)

postwar exhibit of our industry." While the refrigeration and air conditioning industry is now well beyond a "postwar introductory" stage in the matter of new products, the press of competition and the expansion of applications for its equipment has brought about many innovations in products, many of which will make their initial bow at the Show.

Advance information indicates that there will be more air conditioning, refrigerated fixture, and other "end use" products exhibited at this Show than at previous ones.

Many major industry associations are holding conventions or meetings in Chicago during the period of the Show, among them being Refrigeration and Air Conditioning Contractors Association, Refrigeration Service Engineers Society, National Commercial Refrigerator Sales Association, and Refrigeration Equipment Wholesalers Association.

Chicago hotel headquarters for the industry groups are: REMA members and exhibitors, Hotel Sherman; Refrigeration Equipment Wholesalers Association, Hotel Sheraton; Refrigeration Service Engineers Society, Hotel Morrison; Refrigeration and Air Conditioning Contractors Association, Hotel Knickerbocker; National Association of Practical Refrigerating Engineers, Congress hotel.

Special bus service between the downtown hotels and Navy Pier will be in operation during Show hours. The fare will be 30 cents each way.

Universal Line --

(Concluded from Page 1, Column 3)

versal Major Appliances, Inc. and all other Artkraft manufacturing executives will hold similar positions in the new concern. Landers product managers of the lines transferred will hold the same positions with the new firm. R. R. Truby, now chairman of Artkraft, will be chairman of the board.

Landers, the announcement said, will hold a substantial minority interest in Universal but will have no voice in management, production, or sales.

Clark stated that the new firm will be in a position to offer a full line of Universal appliances from one manufacturing and sales source, pointing out that additional lines will be added as soon as possible.

Clark indicated that the refrigerators and freezers will continue to be made in Lima, while the ranges and washers will be manufactured in an Artkraft subsidiary in Baltimore.

A series of regional meetings are expected to be held shortly to acquaint Universal distributors with the changes made, Clark said.

White stated that Landers manufacturing facilities in New Britain formerly devoted to the production of major appliances will now be used to further develop the firm's vacuum cleaners, electric housewares, hardware, and vacuum products.

Fedders-Quigan To Make Crosley Room Units

CINCINNATI—John W. Craig, vice president of Avco Mfg. Corp. and general manager of the Crosley division, has announced that the Fedders-Quigan Corp. will manufacture a line of room air conditioning units for Crosley.

Craig said the units would be produced to Crosley specifications and design and would be distributed through the existing Crosley organization next year.

Welch Co. Wholesale, Retail Prices for Air Flight Fans Set

WASHINGTON, D. C.—Retail and wholesale price ceilings for Air Flight electric circulating fans manufactured by the W. W. Welch Co. of Cincinnati were announced recently by the Office of Price Stabilization.

They are as follows:

Model No.	Retail	Wholesale	W. of Colo.
4	\$39.95	\$19.03	\$19.75
10	44.95	21.58	22.41
11AC, 12AC	49.95	23.77	24.69
11DC, 11-220v	54.95	26.16	27.16
12DC, 12-220v	36.95	17.59	18.26
15, 20	69.95	33.31	34.57
24	44.95	21.58	22.41
30	54.95	28.71	29.81

Rehard Named --

(Concluded from Page 1, Column 4) partment of Buildings and Safety Engineering, Rehard has been active for several years in developing and revising safety codes in refrigeration and other fields in Detroit and on the national scene. He was a member of the committee that drafted the new ASA-B9 Safety Code for Mechanical Refrigeration and serves on their permanent committee.

The "National Board," as it is commonly known, examines all boiler inspectors in the United States and several provinces of Canada and otherwise helps enforce the ASME boiler and pressure vessel code.

CAN YOU QUALIFY FOR THIS POSITION?

HERE'S AN UNPRECEDENTED OPPORTUNITY FOR A MAN OF PROVEN EXECUTIVE SALES ABILITY. This position requires an aggressive man capable of enlarging and welding an existing distributor and dealer organization into a hard-hitting sales force... a man with the ability to make executive decisions in establishing company sales policy. A fundamental knowledge of merchandising mechanical equipment will be helpful. In return we offer a high level salary, security and prestige.

You will be associating yourself with a reputable Southern California manufacturing corporation that has been a leader in its field for over a quarter century.

Your first letter should contain sufficient information to reflect your capabilities. All applications will be held in strictest confidence.

Write Box 3858, Air Conditioning & Refrigeration News.



YOU'LL MAKE A GOOD MOVE

when you sell KOCH refrigerated display cases and refrigerators to your good customers for proper food preservation. KOCH offers you a complete line of profit-making merchandise... the line of least resistance. There's a size and model to meet every commercial need. It's your move. Fill in the coupon... or write today on your letterhead for more information.

KOCH REFRIGERATORS
North Kansas City 16, Mo.

RN 14

Send me complete information on the KOCH line of refrigerated display cases and refrigerators.

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City.....Zone.....State.....

NORTH KANSAS CITY 16, MO.

KOCH
REFRIGERATORS

Lovely to Look at... So Wonderful to Own



20 cu. ft. size, holds up to 1000 lbs.
Others—8.5, 12.5, 16 cu. ft.

Your sportsman can enjoy game dinners weeks or months after the hunting or fishing trip—delicious game meals that cut down on the food budget, too, if he owns a Ben-Hur Freezer.

BEN-HUR MFG. CO. • Dept. AC — 634 E. Keefe Avenue • Milwaukee 12, Wisconsin

BEN-HUR FARM and HOME FREEZERS

HEALTHFUL LIVING THROUGH FROZEN FOODS



"I'm cutting myself some juicy business!"

Retailers can look forward to the holidays with the same anticipation as a kid looking towards Christmas. For we know that holiday time is 'big cooking' time—and the time when women are thinking most of buying new cooking equipment.

"This year, I'm all prepared to tie into this seasonal urge—and this seasonal opportunity—with ranges that have *everything* for faster, easier, thriftier cooking!

"In Kelvinator ranges, my customers get giant ovens that cook the largest turkeys with ease... double ovens, so they can bake, broil, roast—all at the same time! They get terrific heat-up speed—on surface units, in broilers, and ovens. They get 'Colormatic' Controls that tell, at a glance, any of seven different heats that may be dialed.

They get Kelvinator's famous 'Automatic Cook' control that means hours of freedom from meal-minding. They get an Underwriters' Laboratories safety rating that is sky high. They get wondrous beauty, flush-to-the-wall installation.

"Yes siree, Kelvinator ranges are really going to spell big holiday business for me—and permanent business for me—because I know that every one I sell is built with the through-and-through quality and dependability that mean *lasting* sales.

"Once again, I'm going to enjoy my Thanksgiving—and my Christmas—just as I've enjoyed every one since I've held the Kelvinator Franchise. You bet, it's the most valuable one in the appliance industry."

GET MORE...

Get **Kelvinator**

TUNE IN—ENJOY IT! THE PAUL WHITEMAN TV TEEN CLUB ON ABC-TV NETWORK presented by Kelvinator and Nash Dealers. See your local paper for day, time and station.

THE MOST VALUABLE FRANCHISE IN THE APPLIANCE INDUSTRY
ELECTRIC REFRIGERATORS... RANGES... FREEZERS... WATER HEATERS... AIR DRIERS

KELVINATOR • DIVISION OF NASH-KELVINATOR CORPORATION • DETROIT 32, MICHIGAN

Air Conditioning Offers Incentive To Stop at Highway 77 Motel



EACH ROOM of this Kingsville, Tex. motel has its Mitchell Model M-2301, 3/4-ton air conditioning unit to attract tourists to spend the night in cool comfort.

JUST UNDER the roof, where they blend well into the compact, functional architecture of the buildings, these Mitchell units are an invitation to a cool evening to any motorist on Highway 77.



Marley Opens Washington Engineering Service Office

KANSAS CITY, Mo.—The Marley Co., Inc., manufacturer of Marley water cooling towers and air-cooled heat exchangers, announces the opening of its Washington, D. C. engineering service office on Nov. 1, 1951. The office is located in the Wyatt Building at 777 Fourteenth St., N. W. Don Cousins, formerly associated

with the engineering and sales departments of the company in Kansas City, has been named manager of the Washington office.

The opening of the Washington office will enable The Marley Co. to render comprehensive service to both governmental agencies and private industry within the territory.

Sales Calculator

\$\$ Down, Monthly Payments, Cost Per Day, and Taxes Computed by Selling Aid

NEW YORK CITY—The "Sales Calculator," a newly copyrighted approach to instalment selling, has just been introduced to specialty appliance dealers by the General Electric Credit Corp.

Based on the principle that practically all appliance prices end in the \$9.95 or \$4.95 bracket, GECC's specially designed "Sales Calculator" provides salesmen with an on-the-spot answer as to the exact required down payment under Regulation W, the time balance, monthly payments, and a cost per day, all pre-computed for 12, 15, or 18 months.

Instalments can be given the prospect in easy-to-remember even dollar figures. As a further feature for those states and cities where a sales tax is in effect, the "Sales Calculator" also gives such additional costs individually and as part of the selling price.

This selling aid, according to R. L. Knight, vice president in charge of sales, will practically eliminate any necessity for computation on the part of the salesman and should, by inclusion of the cost per day angle, greatly increase the effectiveness of his sales presentation.

Larger Boulevard Appliance Store

ALBANY, N. Y.—The Boulevard Appliance Co. has opened its new and larger store at 169 Northern Blvd.

'Controlled Seasons'

Florists' Need for Way To Retard Growth of Plants Opening Wide Market for Refrigeration Equipment

DECATUR, Ill.—Modern principles of refrigeration are being used to create artificial seasons for the benefit of commercial florists.

A recent experiment by Evans Refrigeration Co. and Daut Bros. florists of Decatur, Ill., has proved that refrigeration can save time and money for the florist and open a large new field for the refrigeration firms.

The Decatur test, now accepted by florists as a profitable and successful part of plant development, uses the principles of refrigeration by housing plants, shrubs, and bulbs in a cooling building to control their growth and development for seasonal markets.

Florists have long known that cool weather retards the development and growth of plants, shrubs, and bulbs. This principle has been known for generations by florists, however they have been forced to use old fashioned methods that were costly and slow.

Commercial florists have had to watch seasons and to bring their plants along to meet the seasons. In many instances great losses were encountered because of their inability to meet buying seasons with adequate plants for the market. In other instances the florist has been unable to retard their plants so that they would not outgrow the season. The plants would mature in advance of the season and would have to be marked off as a loss.

MODERN REFRIGERATION ELIMINATES GUESSWORK

Modern refrigeration takes the guesswork out of the seasonal market problem. By means of a cooling process, the bulbs, shrubs, and plants can be held back or forced forward in their development so that the florist in effect creates his own controlled growing seasons to meet market demands.

Six months ago the Evans Refrigeration Co. and Daut Bros. Florist constructed a large cooling building where plants could be stored in controlled temperatures. This building was 45 ft. long, 20 ft. wide, and 8 ft. high. Two thirds of the building was below ground level, this was so planned so that advantage could be taken of the ground temperatures.

The sidewalls were built of concrete blocks and insulated with four inches of cork. Inside there are three rows of tiered tables, each tier holding potted plants, roses, shrubs, etc.

Two Krack engineered, model F 750 blower coils were used along

with a 1½-hp. Universal water-cooled condensing unit. Ventilating fans were installed at each end of the cooling building to permit proper circulation of the air.

By the use of thermostats mounted in the building, a constant temperature of 32° C. is maintained.

In such temperatures, bulbs, shrubs, and plants will lie dormant and at the approach of each growing season the dormant bulbs are removed and placed in warm greenhouses, thus enabling the florist to start the growth of the plants at a time planned so that they will mature at market time.

Commercial refrigeration men see the result of the Decatur experiment opening a new field for sales possibilities since most florists are willing to forego the old expensive hand method of controlled plant growth for the modern refrigeration method.

A survey of downstate Illinois has indicated that very few commercial florists were using cooling buildings, but that this new principle in controlled plant development is gaining in popularity and acceptance since the experiment in Decatur has proved to be such a success.

Hubbell Metals Inc. (formerly Brass and Copper Sales Co.) of St. Louis supplied the refrigeration equipment used in this experiment.

Line Is Chief Engineer Of Ansul Refrigeration Div.

MARINETTE, Wis.—Ansul Chemical Co. has announced the appointment of Richard A. Line as chief engineer, refrigeration division.

Line, who held a similar post with the Lehigh Mfg. Co. before joining Ansul Oct. 1, is recognized throughout the refrigeration industry for his work in developing the Lehigh reverse cycle defrost system.

A graduate of the engineering school at Ohio State university in 1941, Line served in the Industrial Service and Procurement department of Army Ordnance during the war. Prior to his military service he was with Seeger-Sunbeam Corp. as process engineer.

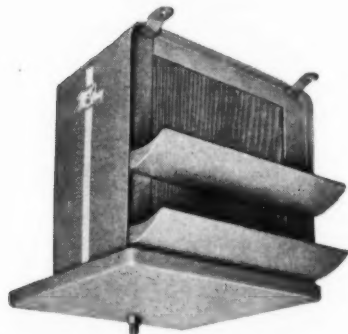


Richard A. Line



TWO-WAY UNIT COOLER

Designed for applications above 35° F., compact and efficient, for direct draw bars, back bars and reach-in refrigerators where space is limited. In two sizes, 90 and 135 B.T.U. (Basic refrigeration rating.)

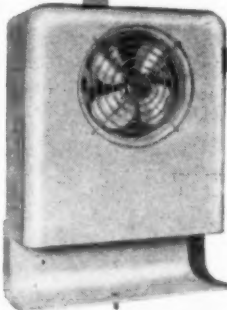


PACEMAKER UNIT COOLER

Provides efficient compact "low sides" where fixture temperatures above 35° F. are required. For back bars, novelty boxes, walk-in coolers, etc.

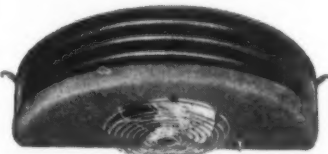
PANEL TYPE CHILLATOR

Designed for wall mounting. For reach-in cabinets, beverage coolers, back bars and small walk-in cooler applications above 35° F.



RADIAL UNIT COOLER

For refrigeration applications above 35° F., as well as for economical comfort cooling installations in small offices and shops. Allows maximum head room. In seven sizes, from 200 to 870 B.T.U. (Basic refrigeration rating.) Nominal comfort cooling ratings from 3/4 to 3 tons.



SPECIFY McQuay UNIT COOLERS

...Take the headaches out of installation and service jobs!

An advantage of specifying McQuay Unit Coolers is the ease with which they can be installed and the minimum of service they require. McQuay Unit Coolers are designed to make your installation job simple. Connections are placed where you can get at them.

For trouble-free refrigeration or comfort cooling, it's McQuay. Only McQuay gives you Ripple-Fin coils with fins permanently bonded to tubes by hydraulic expansion. Consult the McQuay representative in your territory or write McQuay, Inc., 1607 Broadway St. N.E., Minneapolis 13, Minn.

McQuay INC.

HEATING • AIR CONDITIONING • REFRIGERATION



WHEN YOU USE "EASY TO FABRICATE" VIKING COPPER TUBE

For Viking Tube is easy to bend and flare. Its uniform temper insures speedy, efficient, trouble-free fabrication and strength where strength is needed.

ELECTRIC ANNEALING INSURES UNIFORM QUALITY

PLIABILITY

Viking Copper Tube is soft. It can be formed easily without danger of fracturing or splitting.

CLEAN AND DRY

Viking Copper Tube is triple-sealed. It is bright, bone-dry and dirt-free. The seal is made to pass through any opening large enough for the tube itself.



Be sure to visit the VIKING Booth at the R-E-M-A Exposition

VIKING Copper Tube Co.

CLEVELAND 10, OHIO

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HURRY!**

see 'em alive and in the flesh
at the 7th All-Industry Show in Chicago
ALCO's Booth No. 247

Here's your chance to see ALCO's prize collection of refrigeration "brains"—the most outstanding group of its kind ever gathered together. They walk, they talk—and that's not all! Watch 'em perform when you feed 'em tough refrigeration problems.

Seriously, ALCO and each of the "fine specimens" shown above, invite you to visit Booth No. 247 for an enjoyable and profitable get-together. A complete display of all the latest ALCO valves and equipment will be there for you to see.



ALCO VALVE CO.

853 KINGS LAND AVE. • ST. LOUIS 5, MO.

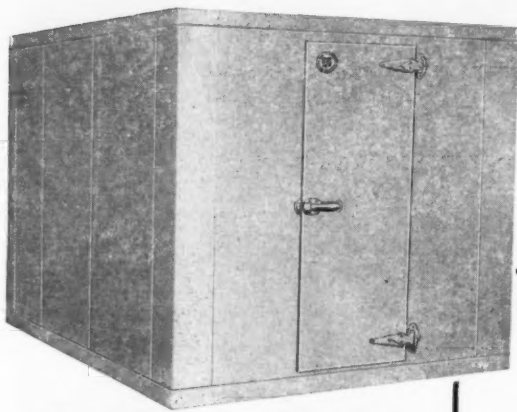
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of Thermostatic Expansion
Valves; Evaporator Pressure
Regulators; Solenoid Valves;
Float Valves; Float Switches.

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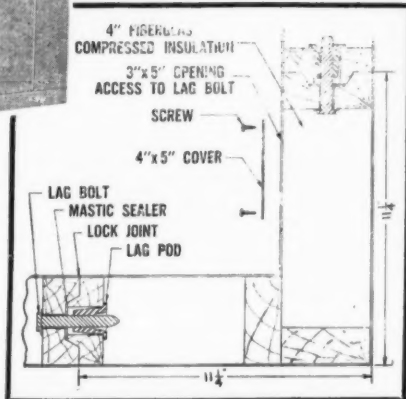
the all NEW

**LA CROSSE
METAL
WALK-IN**



**IT'S HERE . . . AND NEW
AS TOMORROW MORNING**

This brand new beauty is another stride forward for LA CROSSE, THE LEADER—it's years ahead in design and engineering. Features interior construction of heavy galvanized steel, exterior of paint grip, zinc grip steel finished in gray baked enamel. Tongue in groove construction assures "LEAK PROOF" fit . . . steel lag screws and steel pods for "GRIP TIGHT" assembly and asphalt application for "SURE SEAL" joints and seams . . . 4" compressed Fiberglass insulation.



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CABLE ADDRESS: EXIMPORT

Retiring Food Inspector Calls Refrigeration 'Our Greatest Advance'

BUFFALO—Ask Mrs. Edna K. Mitchell of Buffalo her opinion of the most important technological advance of the last 30 years in the food industry, and her answer probably would be "refrigeration."

Mrs. Mitchell speaks with considerable authority. For 32 years, until her recent retirement, she was a food inspector for the Buffalo City Health Dept. and the County Health Dept.

Mrs. Mitchell, who is 70 years old, began inspecting food in restaurants, bakeries, stores, and manufacturing plants back in 1918 "when most people hadn't heard about refrigerators," she said in a newspaper interview at the time of her retirement.

"Naturally, there was far more food spoilage in those days with the old-fashioned ice box," she related. "Refrigeration was a welcome improvement for the handling, storage, and preparation of foods."

Loblaw Self-Serve Market Has Cooled Cutting Room

SYRACUSE, N. Y.—In the remodeling of the Loblaw supermarket at 320 West Onondaga St. the new self service meats department was provided with 40 ft. of refrigerated display cases and the meat cutting and wrapping room was air conditioned. A refrigerated dairy department is another feature.

Master Program Lists Industry Show Events

Saturday, Nov. 3

9 a.m.—Refrigeration Service Engineers Society registration starts at Terrace Casino, Morrison hotel.

9 a.m.—Refrigeration and Air Conditioning Contractors Association opening session begins at Hotel Knickerbocker.

12:30 p.m.—Refrigeration and Air Conditioning Contractors Association luncheon, Hotel Knickerbocker.

1 p.m.—Refrigeration Service Engineers Society general business meeting starts, Terrace Casino, Morrison hotel.

2:30 p.m.—Afternoon session, Refrigeration and Air Conditioning Contractors Association, begins in Hotel Knickerbocker.

Sunday, Nov. 4

8 a.m.—Registration opens for Refrigeration Service Engineers Society delegates in Terrace Casino, Morrison hotel.

9 a.m.—General session, Refrigeration Service Engineers Society, Terrace Casino, Morrison hotel.

9 a.m.—Refrigeration and Air Conditioning Contractors Association registration.

10 a.m.—Refrigeration and Air Conditioning Contractors Association membership meeting and election of officers, Hotel Knickerbocker.

10 a.m.—Refrigeration Equipment Wholesalers Association board of directors meeting in the Sheraton hotel.

1 p.m.—Refrigeration Service Engineers Society educational meeting, Morrison hotel.

2 to 9 p.m.—National Commercial Refrigerator Sales Association registration in Century Room, La Salle hotel.

3 p.m.—Refrigeration and Air Conditioning Contractors Association board of directors meeting, Hotel Knickerbocker.

7 p.m.—National Commercial Refrigerator Sales Association board of directors annual dinner, Parlors E and F, La Salle hotel.

7 p.m.—Refrigeration Service Engineers Society 14th annual banquet, Terrace Casino, Morrison hotel.

Monday, Nov. 5

8 a.m.—Refrigeration Service Engineers Society registration, Terrace Casino, Morrison hotel.

8 a.m.—Refrigeration Equipment Wholesalers Association registration, Sheraton hotel.

8:45 a.m.—National Commercial Refrigerator Sales Association registration, La Salle hotel.

9 a.m.—Refrigeration Service Engineers Society general session opens, Terrace Casino, Morrison hotel.

9 a.m.—"Kickoff Breakfast" in Grand Ballroom of Hotel Sherman for exhibitors, officers of cooperating trade associations, the trade press, and government officials (by invitation).

10 a.m.—Refrigeration Equipment Wholesalers Association annual meeting starts, Grand Ballroom, Sheraton hotel.

10 a.m.—National Commercial Refrigerator Sales Association meeting starts, Century Room, La Salle hotel.

1:30 p.m.—Refrigeration Equipment Wholesalers Association annual luncheon, Boulevard Room, Sheraton hotel.

2 p.m.—National Commercial Refrigerator Sales Association afternoon meeting starts, Century Room, La Salle hotel.

2 to 10 p.m.—Seventh All-Industry Exposition, Navy Pier.

2:30 p.m.—Refrigeration Equipment Wholesalers Association afternoon session begins, Grand Ballroom, Sheraton hotel.

7 p.m.—National Commercial Refrigerator Sales Association, fifth annual dinner, Grand Ballroom, La Salle hotel.

Tuesday, Nov. 6

8 a.m.—Refrigeration Service Engineers Society registration, Terrace Casino, Morrison hotel.

9 a.m.—Refrigeration Service Engineers Society final session, Terrace Casino, Morrison hotel.

10 a.m.—National Commercial Refrigerator Sales Association final meeting, Century Room, La Salle hotel.

10 a.m. to 6 p.m.—Seventh All-Industry Exposition, Navy Pier.

7:30 p.m.—Refrigeration Equipment Wholesalers Association annual cocktail party and banquet, Boulevard Room and Grand Ballroom, Sheraton hotel.

Wednesday, Nov. 7

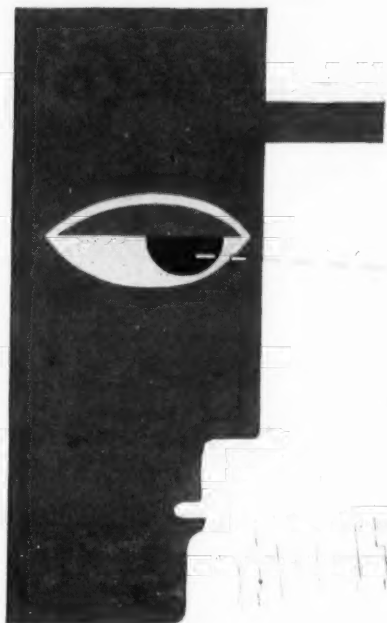
12 Noon to 10 p.m.—Seventh All-Industry Exposition, Navy Pier.

6 p.m.—Refrigeration Equipment Manufacturers Association cocktail party, Lake Shore Club of Chicago (by invitation).

Thursday, Nov. 8

10 a.m. to 4 p.m.—Seventh All-Industry Exposition, Navy Pier.

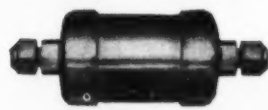
ANNOUNCING! A REVOLUTIONARY NEW LIQUID INDICATOR



sliding sleeve keeps new
Mueller Brass Co.
QUIK-SIGHT liquid indicator
clear and clean at all times



Have these STREAMLINE products on hand for every job where you want dependable performance.



DRIERS AND FILTERS



VALVES



FLARE FITTINGS



STREAMLINE refrigeration products are individual and multiple packaged for complete protection. Write for catalog R-151 describing complete line of STREAMLINE refrigeration products.

Just slide back the copper protective sleeve on the new Quik-Sight indicator and your refrigerant supply is instantly and clearly visible. Return the sleeve to closed position and the window is securely guarded against breakage. Two "O" rings in the assembly form a positive seal against dust, dirt and oil film when the sleeve is closed.

The revolutionary glass-to-metal soldering of Quik-Sight Indicators provides a thoroughly tight seal for any refrigerant, and eliminates need for gaskets and threaded joints that often work loose with vibration. Indicator design allows for thermal expansion through the whole assembly without strain.

Quik-Sight Liquid Indicators are easy to install. Wide wrench flats make it easy to get connections tight. The swivel connection on the flare end simplifies attachment to valves, driers or line because it eliminates all twisting strain on the indicator assembly during installation.

Quik-Sight Indicators are available in 1/4" M. Fl. x 1/4" Fem. Fl. and 3/8" M. Fl. x 3/8" Fem. Fl. There are MUELLER BRASS CO. Liquid Indicators to fit most installations. For complete information consult your refrigeration wholesaler or write to—

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AT THE 7TH ALL-INDUSTRY SHOW IN CHICAGO

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PRODUCTS

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You're
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TO A PREVIEW
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TECUMSEH'S
New Line of Compressors



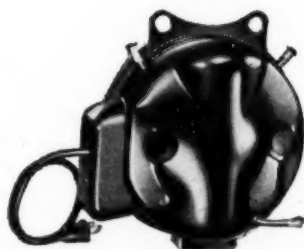
*Twin Cylinder
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*Model VFP
4 Cylinder Compressor*



*Single Cylinder
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*Compact
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Tecumseh announces a complete new hermetic and conventional line of compressors and condensing units. See them at the 7th All-Industry Exposition, Navy Pier, Chicago, November 5th through November 8th.

★ **BOOTH 108 - 110 - 112** ★

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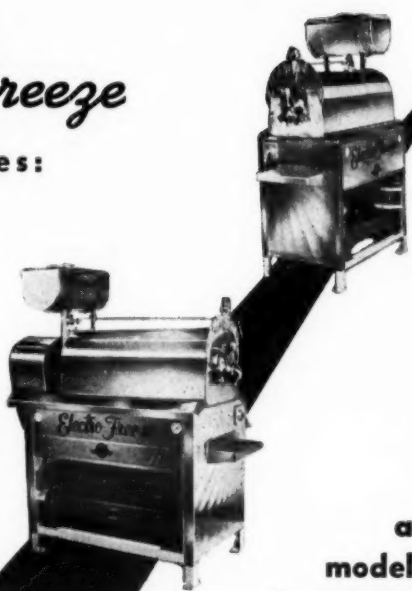
The floor plan is divided into four sections, each with a 'NORTH' arrow indicating orientation. The plan includes a 'SHOW HEAD-QUARTERS' area, a 'REGISTRATION AREA' with an 'ENTRANCE' and 'TO EXHIBITS' arrow, a 'SNACK BAR', a 'RESTAURANT', and a 'STORAGE AREA'. Rooms are numbered and labeled with exhibit titles. A list of exhibitors is provided on the right side of the plan.

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- ✓ Direct dispensing—continuous freezing!
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model
for every
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Electro Freeze models range from 5 to 30 gallons per hour in production. A model that's just right to handle *your* amount of traffic.

Dealers — there are several territories open for 1952 Electro Freeze distributorships. As an Electro Freeze distributor you will benefit from the proven dependability of our machines.

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American Brass Co.	245
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We're mighty proud of what we have to show at the REMA ALL-INDUSTRY SHOW IN CHICAGO. We really have too much to show all at once—there will be enough though to make you do a retake (take another look).

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Products Corporation, Hagerstown, Md.



MANUFACTURERS OF THE FAMOUS VICTOR QUICKFREEZE

Millard Describes Military Refrigeration Needs, Asks Help on Standardization

ST. LOUIS—A plea for assistance in the program being fostered in the Quartermaster Corps for standardization of components of refrigeration systems made by the industry for use by the Armed Forces, was sounded in the recent talk made before the St. Louis section of the ASRE by J. W. Millard.

Millard is Research Director, Mechanical Products Branch, Research & Development Div., Office of the Quartermaster General.

"I do not mean that every manufacturer should make exactly the same kind of equipment as all others," Millard emphasized. "However, there is no reason why certain basic and common dimensions should not be the same in order that the equipment of manufacturer 'A' can fit in the same place provided for equipment of manufacturer 'B.'"

"For the first time, we in the QMC have money available for standardization. We are undertaking a study to see how best this can be accomplished and we hope to be able to report tangible results in the immediate future."

Millard presented, in his talk, explicit descriptions of the types of

refrigeration equipment used by the Army, and explained the special requirements of units employed by the Armed Forces.

There seems to be still a little uncertainty throughout your industry as to the various fields of responsibility in the Army for refrigeration, the speaker said. A recent circular has defined this in substance as follows:

The QMC is charged with responsibility for all portable and mobile refrigeration. The Engineer Corps has all air conditioning and stationary refrigeration such as cold storage warehouses. It also has all ice making equipment, both stationary and portable, which includes, of course, cube and flake ice machinery.

Each of the several technical services in the Army is responsible for its own special applications; i.e., applications which are peculiar to that service and are used only by that service.

There are two types of refrigeration equipment with which we are concerned: commercial and military. Commercial items are used in Army posts, camps, and stations in the Zone of the Interior, or in any static

or peaceful zone such as Japan, Germany, etc.

Examples of this type of equipment are commercial reach-in refrigerators up to 20-cu. ft. capacity, reach-in and walk-in boxes from 20 to 80-cu. ft. capacity, walk-in boxes up to 4,000-cu. ft. capacity, vegetable and meat display equipment, milk coolers, etc.

Military items are intended solely for use by field armies. Examples of this are 7½-ton refrigerated trailers, pre-fabricated warehouses up to 4,000 cu. ft., ice cream freezers, water cooling units, etc.

Commercial equipment, as such, is purchased by us on a functional type specification. Usage by the military and civilians is exactly the same both as to ambient temperatures and internal maintained temperatures. Service on the spot for commercial equipment for Zone of Interior and similar usage is a function of the Corps of Engineers and is handled by their mechanics or in some cases by contract with a local dealer.

Post Acquires Parts

In general, spare parts are procured by the post engineer at the installation involved. When equipment is returned to a base depot for major overhaul and rehabilitation this service is performed by the QMC.

Most of Millard's talk comprised a discussion of the military type of equipment.

"It is with these items that we have most of our headaches and most of our troubles," he said.

"In the first place, it is obvious that the Army must be prepared to fight anywhere on the world's surface. By the same token, its equipment must be so designed that it will operate successfully either in frozen wastes or parched deserts.

"Understandably, this poses problems. Specifically, equipment must operate and maintain either 35° or 0° internal temperatures in ambient temperatures as high as 125° F. to as low as -25° F.

"Because this upper ambient temperature limitation was imposing a severe design penalty on us, we received special dispensation to use an upper limit of 110° F. with an occasional 4 hours rise to 125° F. In this we are taking a calculated risk and are depending largely on the flywheel effect of the box load to prevent too high a temperature rise at the higher ambient temperature.

"At the same time, we must provide for long-time storage of the equipment itself and because of world-wide use we must allow for temperatures that go as low as -80° F. and as high as 160° F. Admittedly, these two extremes are not often encountered but, nevertheless, they do happen often enough that we must take them into consideration.

"We must design field equipment to operate under a maximum rainfall or approximately one inch per hour. It must stand up under a 9-lb. snow load and must survive a 40-m.p.h. wind with gusts to 60 m.p.h.

"Kits, such as stakes and guys, may be furnished to take care of a steady wind of 50 m.p.h. with occasional gusts of 80 m.p.h. I won't go into detail about all the provisions for dust but suffice it to say that the equipment must be designed to come undamaged through a dust storm carried by a wind of 25 m.p.h.

"As if all of the above design provisions are not enough—we must make provision for air transportation. Most of you are familiar with the rule of thumb which calls for four pounds of airplane to transport one pound of freight.

How It's Used In Battle

"How is the equipment used? Take, for example, an amphibious invasion such as we had in the last war. Before the landing, the proposed beach head is softened up by preliminary bombing and bombardment, which usually reduces to rubble any local storage warehouse which might otherwise be used.

"Obviously, the men use combat rations at first, but I believe you would be surprised at how quickly frozen meat and perishables are put on their daily menu.

"If the local warehouse can be repaired, the engineers get it in operation. In the meantime, field refrigerated warehouses are taken in and erected by the QMC in batteries which may sometimes be a quarter mile long. These warehouses are extensible in modules of 8 by 12 by 8, each module with its own refrigeration unit of 10,000 B.t.u. capacity.

"These field boxes can maintain either 35° or 0°. They are loaded with meat and perishables brought in by reefer ship. As the front progresses, these perishables are carried from the warehouse at the base up forward to 150-cu. ft. boxes nearer the fighting zone by 7½-ton refrigerated trailers. These 150-cu. ft. boxes then fan out in supply to smaller units until finally the perishables reach the individual soldier. It is this system of distribution that results in the American soldier being the best fed in the world.

"Because of the fact that the local electric power plant and distribution system are usually casualties, the first refrigerating units or plugs are generally driven by gasoline engines. Later, when, as, and if electric power becomes available, the plugs are changed to electric motor drive. Maintenance is less on these electric drive units and they are obviously quieter, a not inconsiderable advantage.

"When we first started work on our modular refrigeration idea we received a tremendous amount of help from a committee of refrigeration engineers formed under the auspices of the National Research Council. We put our problems up to these gentlemen and it was with their help and advice that we finally arrived at the basic module mentioned before.

"From this module we then arrived at our basic refrigerated panel of nominally 4 ft. by 8 ft. by 6 in. thick. Actually, a wall panel measures 42 in. by 78 in. in area. This

was done to get the maximum size that could be made from commercial sheet and at the same time be of a size easily handled by men. This panel size has since been standardized in order that panels may be interchangeable between Services.

Standard Panel Design

"It seems simple to design a panel, doesn't it? And yet it has probably given us more trouble than any other single item. We have come a great way, but I'm still not convinced that we have the final answer.

"In the first place, it must be as light as possible, so that it can be man-handled easily, but it must be strong to withstand field abuse. It must be interchangeable completely with other similar items, and be serviceable after 20 assemblies and disassemblies.

"It must be sealed against the entry of moisture, it must make a moistureproof seal against the adjoining panels, and the entire box must be assembled easily and quickly. The fasteners must be simple, cheap, effective, and have positive takeup. They must also be in the panel and provide minimum lodgement for dirt.

"We have at least an answer in our present field panel, gasket, and fastener, but as I said before, we do not regard them as necessarily the ultimate.

"The QMC was given responsibility for maintenance of field refrigeration some years ago. In the last war, refrigeration companies were formed which took care of servicing refrigeration equipment;—in some cases in tremendously large areas with a remarkably small group of men. Because of the fact that properly trained men are difficult to assemble in the quantities needed, we are not only stressing the need for simplicity and ruggedness in equipment but also we are attempting to reduce the sources of trouble.

"For example, we could use automatic controls much more than we do, but we have found that they suffer functionally under the adverse climatic conditions under which they must operate. More hand control is, therefore, an answer.

"We have found, as another example, that belts are a source of trouble, so in our work we have gone as far as possible to directly-driven equipment and we are making greater use of the hermetic-type compressor.

"In our design, we use what is referred to as a plug, in which the high and low sides are combined in a single self-contained unit. In the event of failure of any one plug it can be removed as a unit and replaced as a unit. The plug requiring service is then taken back to the repair base which has qualified overhaul mechanics and full sets of tools as well as spare parts.

"Our biggest source of trouble and our greatest expenditures of funds is due to the lack of standardization which exists at this time within the refrigerating industry.

"I do not mean that every manufacturer should make exactly the same kind of equipment as all others. This, of course, would be the ultimate in saving, but would be practically impossible of accomplishment and has no place in a democracy.

"However, there is no reason why certain basic and common dimensions should not be the same in order that the equipment of manufacturer 'A' can fit in the same place provided for the equipment of manufacturer 'B.'

"I have mentioned compressor shaft diameters, mounting hole dimensions, shaft height, cap studs, valve mountings, etc. All of this can be accomplished with very little expenditure on the part of industry and will result in enormous savings to your industry itself and to your customers, as well as to the Armed Forces.

"For the first time, we in the QMC have money available for standardization. We are undertaking a study to see how best this can be accomplished and we hope to be able to report tangible results in the immediate future.

"In some cases where complete interchangeability is needed we must, of course, go to a military model. I am referring in this case to our panels, door sizes, and plug openings as well as associated fasteners, etc. In most cases, however, we are confining our thoughts on standardization to the components of the system and in these components, to those details which are not used primarily for sales purposes."

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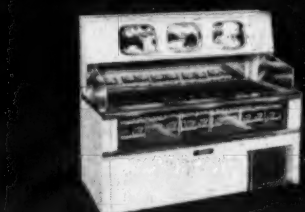
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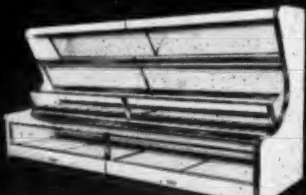
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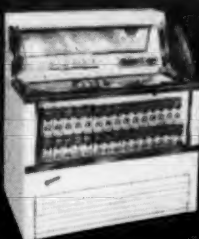


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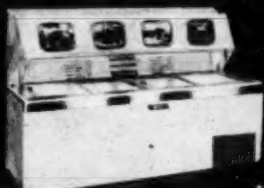


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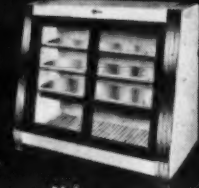
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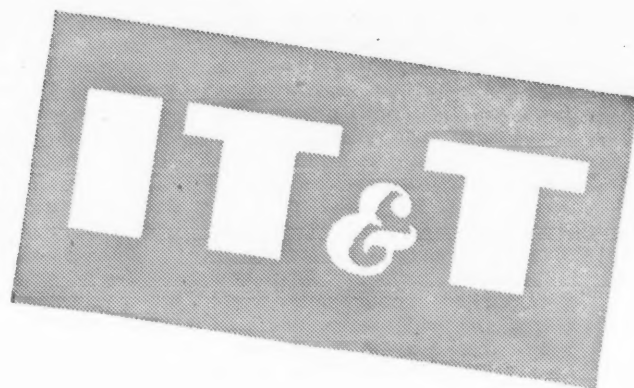
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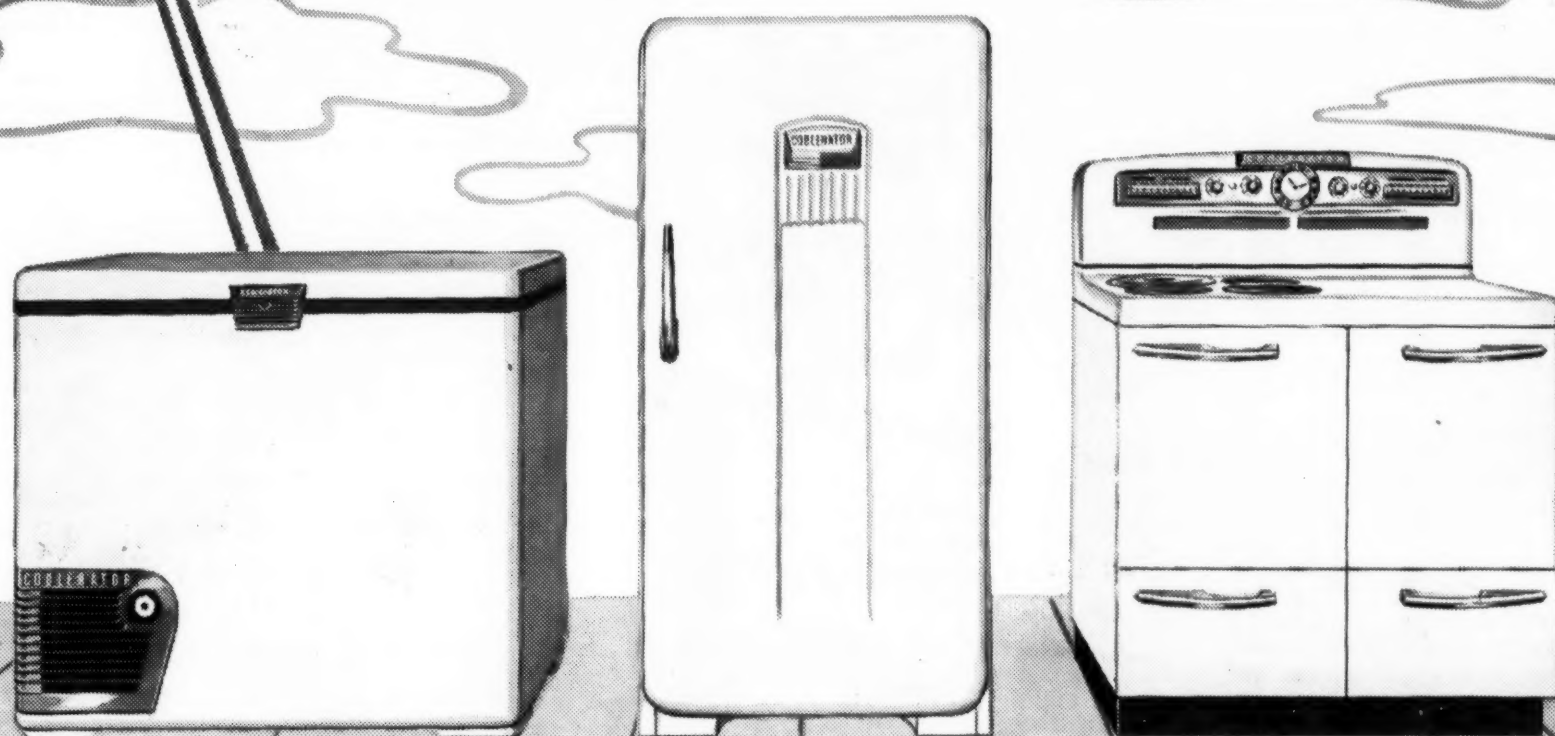
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in the new association of



with

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Now behind the long-respected Coolerator name are all the world-wide resources, the financial strength, the extensive research and the manufacturing facilities of International Telephone and Telegraph Corporation.

This means Coolerator's good position in the industry will be immediately improved. It means substantial increases in advertising and promotion. It means plant expansion and modernization. It means a new and even finer line of refrigerators, freezers and ranges for 1952.

Above all, this will mean more consumer

recognition and demand—and more sales for Coolerator dealers. Watch for further news of great developments from the association of these two organizations.

For full details on Coolerator appliances—see your local Coolerator distributor or write to The Coolerator Company, Duluth 1, Minn. Ask about a Coolerator franchise.



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67 Broad Street, New York, N. Y.

What To See at the Show

Advance Information on New Products, Models, Company Highlights,
Location of Booths at the 7th All-Industry Show

A-P Controls Corp. 241, 243
Model 207C expansion valve, model 67 industrial solenoid, several domestic refrigerator valves, model 209 expansion valve demonstrating unit.

Ace Cabinet Corp. 313, 315, 317
Glass front frozen food and ice cream merchandiser; frozen food, ice cream, and low-temperature storage cabinets.

Acme Industries, Inc. 244, 246
New HX heat exchanger to replace present Acme series; new horizontal and vertical convectors; demonstration of change-over valve on Acme "Flow-Cold" liquid chiller, enabling unit to be used for heating.

Airserco Mfg. Co., Inc. 405
Electronic sound tracer which opens "new fields in testing and maintenance where vibration is an important factor in checking performance"; portable evacuator.

Ajax Corp. of America 440-444
Models of "Electric Iceman," "Electric Ice Flaker," "Dial-A-Drink," "Mighty Midget Roomaster."

Alco Valve Co. 247
"Unusual" display with "surprise" feature, plus working models of a heat pump showing new-type, pilot-operated, four-way change-over valve for small tonnages; also visual, operating 908 "Electro-Level" liquid float control with electronic level selector; special

display of controls as used by armed services.

Allen-Bradley Co. A-308, A-312
Complete line of pressure and temperature controls; motor controls and accessories.

Allin Mfg. Co. 450
"Giant model" of adjustable capillary tube. Tube will be in o.d. copper, fittings proportional to tube size. Visiting service engineers will be permitted to install actual "cap" tube on an operating refrigeration system, then make adjustment for any desired operation pressure.

Allis-Chalmers Mfg. Co. 477, 479
Air conditioning and heater circulating pumps, including redesigned close-coupled pump unit engineered for wide range of fractional horsepower applications. Also, 2 by 2-in. circulating pump in operation; 6 by 6-in. single-stage, double-suction pump; operating blower unit; cutaway 2 by 2-in. "Electrifugal" pump; cutaway of open-type, general purpose induction motor.

Harry Alter Co., Inc. 245-A
"Rest Haven" . . . "where weary convention-goers can relax and get a 'breather.'"

American Brass Co. 245
Demonstration of radiant panel heating and radiant cooling by use of "heat pump" principle; displays showing all sizes of vibra-

tion eliminators and care used at various steps of their manufacture.

Ansul Chemical Co. 248
Visitors may compete for cigarettes, cigarette cases, and calendar prizes in booth with theme of "technical service through the years" and featuring "new, improved" Ansul refrigeration oil.

Armstrong Cork Co. 483
Low-temperature insulations in board form for insulation of rooms and ducts, and in sectional form for pipe covering.

Bailey & Perkins Co. 601
New dairy cabinet and frozen food and ice cream cabinets in capacities of 6 to 13.5 cu. ft.

Baker Refrigeration Corp. 326
New 1952 "Bakeraire" self-contained air conditioner in sizes from 3 to 10 tons and featuring high baked "wrinkle" enamel, humidity control, over capacity "Sphericoil" condenser with enlarged area for rapid heat exchange, newly designed connection outlets. Also, cutaway model of new F40CA "Freon" compressor.

Bally Case & Cooler Co. 451, 455, 458, 462
Fully-automatic, self-defrosting, open-style frozen food case of a double-duty, self-contained type and featuring large capacity; all-purpose, single-shelf, open-style case available in top-display and

On this and pages 15, 18, and 19 can be found brief "previews" of booths at the All-Industry Show. The exhibiting manufacturers covered in this preview are those from which advance information was available.

While these highlights are primarily for Show visitors who will want to choose their itinerary, those who cannot attend will find much valuable information on products soon to reach the market and special items for their particular fields.

Baltimore Aircoil Co., Inc. A-318
New line of LT cooling towers to be manufactured in capacities of 105 TR to 225 TR in a single factory-assembled unit; extended line of UL evaporative condensers in capacities ranging from 105 TR to 260 TR base rating using "F-12" refrigerant; new line of industrial propeller fan wheels suitable for low and medium pressure applications.

August G. Barkow Mfg. Co. 473
New 18-cu. ft. "Barkow Cold Shelf Vertical Food Freezer" equipped with hermetically-sealed condensing unit and freezer shelves.

Binks Mfg. Co. 510
New model 2B6 mechanical draft cooling tower in operation. Model is furnished with blower (instead of propeller-type fan), making operation of unit "absolutely quiet," according to company. Suited for use on air conditioning and refrigeration equipment of from 1 to 60 tons. Also, demonstration of spray nozzles under operating conditions.

R. H. Bishop Co. 329
New 1952 model Bishop open-type ice cream display cabinet with automatic defrosting system. Cabinet will display more than 800 pints of ice cream; features blast-type cooling, large Thermopane panel in front, shelving on superstructure. Also, new Bishop 18-cu. ft. home freezer.

Black, Sivals & Bryson, Inc. 452
Sealed type rupture disc assembly used as a pressure relief device to eliminate refrigerant loss; model CGB $\frac{1}{2}$ refrigerant valve.

Bonney Forge & Tool Works 206
Specialized refrigeration tools and a complete line of refrigeration service tools.

Brewer-Titchener Corp. 302, 304
New low-temperature metal shrinker, full-vision frozen food case, frozen food display case, whole blood refrigerator, hospital utility freezer, hospital combination ice cube maker.

Brunner Mfg. Co. 224, 228, 232, 222, 226
New 40-hp. condensing unit built either as water-cooled unit or motor compressor; 75-hp. motor compressor; close-coupled units; combination air and water-cooled condensing units; truck units; cutaway sectional compressors.

Bundy Tubing Co. 305, 307
Samples of various types of condensers using "Bundyweld" tubing; steel tubing for condensers and evaporators; sample parts made from Bundyweld for compressors, etc.

Bush Mfg. Co. 116, 118
Three new lines of equipment: (1) Hot-dipped, galvanized industrial finned tubing with "V" fin 3 by 4 in. on 1 $\frac{1}{4}$ -in. steel pipe and "W" fin 4 by 4 in. on 2-in. steel pipe; (2) unit coolers and low-temperature water defrost blowers for ammonia and brine, having stainless steel tube and aluminum fin; (3) "Therm-o-cycle" operating display unit (Therm-o-cycle is a completely automatic hot gas defrost low-temperature system using "Freon").

Butcher Boy Cold Storage Door Co. 535
New "X" type cooler and freezer doors, "X-52" plywood panel door, "Inter-Lok" door construction.

Carbonic Dispensers, Inc. 551
High-capacity drink dispensing cabinet which dispenses three flavors and soda water from one faucet; new 5-in-1 "Mix-Monitor" faucet; supercharging carbonator.

Century Electric Co. 502
Cutaway model of integral hp. gear motor; new special service split phase motor; various ratings and designs of fractional and integral hermetic motors. A 5-hp. splash-proof motor will be disassembled in booth.

Chemical Solvent Co. 610
"Solvex"—granular and tablet form—to be used for cleaning water circulating systems in air conditioning equipment.

Chrysler Corp., Airtemp Div. 342
Packaged air conditioner; room air conditioner; radial compressor unit; commercial refrigeration condensing unit; dehumidifier; liquid cooler.

Coldin Cabinet Co., Inc. 501
New 8-ft. open dairy display case for continuous application, 4 $\frac{1}{2}$ -ft. self-contained beverage wall case; 4-ft. full-vision display case.

Cold-Trol Co. 514B
"Scotsman" automatic ice maker producing "solid, clear, large" ice cubes.

Copeland Refrigeration Corp. 128, 130, 132
Jobber coverage featured in background display by means of map with lights and a screen in which jobber's name appears simultaneously with lighting of his location. Also, cutaway Copelametic motor-compressors and belt-driven compressors in compartments with transparent mirror fronts, one compressor at a time coming into view as lights in box come on.

Cornelius Co. 475
Tap rod made by forging rather than casting, plus beer faucets, air distributors, NK regulators, beverage and air hose, models K and GXA compressors, push-back water faucet, ring seal tap rod.

Curtis Refrigerating Machine Div., Curtis Mfg. Co. 431, 435, 436, 442
Entirely new line of refrigerating and air conditioning equipment; latest model 2 $\frac{1}{4}$ -in. stroke cutaway compressor in operation. Display to include 400 PA air conditioning unit, type "M" compressor unit, 15-hp. shell and tube condensing unit, 1-hp. combination air and water-cooled unit, 1-hp. air-cooled unit, 1 $\frac{1}{2}$ -hp. water-cooled unit.

Cutler-Hammer, Inc. 204, 208
"Thin model" Bulletin 9525 controls for domestic and semi-commercial refrigerators, coolers, freezers, etc. Twenty-five controls in line to assure "specific fit" replacement for late-model refrigerators.

Davison Chemical Corp. 214, 218
"New and improved" Davison PA-100 refrigeration grade silica gel.

Dayton Rubber Co. 402
Company's patented "Cog-Belt" for all types of air conditioning and refrigeration drives; jobber and dealer selling aids.

Dean Products, Inc. 203
"Job-Tailored" cold plates, a development permitting purchase of plates in exact size needed for job and in wide range of shapes. Also, refrigerated circular restaurant display table and working plastic model of evaporator plate.

Delavan Mfg. Co. 219
Industrial-type nozzles for refrigeration and air conditioning work; complete line of replacement parts for refrigeration compressors.

Detroit Lubricator Co. 415, 419, 423, 427
New line of large expansion valves in capacities ranging from 6 to 25 tons, presented before background display built around company's current advertising promotion of importance of proper maintenance of existing refrigeration equipment.

Detroit Stamping Co. A-184
New "Iso-Finished" valves, plus blower housings, stamped refrigeration parts, coined refrigeration valve plates, toggle clamping tools.

Dispensers Inc. 51A
New-type carbonating tank featuring permanent magnetic switch which eliminates use of belts, relays, pulleys, electrodes, or pump packing washers; new line of automatically refrigerated soft drink equipment.

Distillation Products Industries 438
New-type vacuum pumping cart of kind used to evacuate and dry compressors on a continuous mass production basis; samples of refrigerator panels and name plates showing use of high vacuum metallization to dress up plastic parts.

Dole Refrigerating Co. 312, 314
Hot gas defrost bank; "Ice-Col" and salad counter in operation. Former provides automatic method of defrosting overhead plate banks for low-temperature rooms.

Good Reasons why the trend is to VERTICAL Home Freezers

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- 4 No Basket Juggling
- 5 No Lists to Keep
- 6 No Sorting
- 7 No Cold Air Lost While Baskets are Exposed
- 8 Uses $\frac{1}{2}$ the Space of Horizontals
- 9 Costs Less to Operate
- 10 Deep Well for Large Items
- 11 No Heavy Cover to Lift

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OFFERS YOU TODAY'S
BEST FREEZER DEAL

(Continued on next page)

Preview Picture of the Show

(Continued from preceding page)

E. I. du Pont de Nemours & Co., Inc. (Kinetic Chemicals Div.) 117
"Freon-11," "Freon-12," "Freon-21," "Freon-113," "Freon-114," to be represented photographically and by replica of cylinder.

Ebeo Mfg. Co. 230
New electric dehumidifier (model J-20 "Oasis" air drier) lighter in weight and more compact than former Oasis models. Eliminates excess atmospheric moisture in area of 8,000 cu. ft. Has light, "spillproof" moisture container made of polyester reinforced with Fiberglas.

Electric Auto-Lite Co. 456
Dial indicating and recording thermometers for direct and remote reading; recording pressure and vacuum gauges.

Emerson Electric Mfg. Co. 524
"Dustproof" centrifugal starting switch in operation on typical motor application, with motor cut away to reveal moving parts; demonstration of hermetically-sealed domestic refrigerator type compressor in a plastic housing; samples of new 15-hp., 2-pole, hermetic motor and new welded stators used on hermetic integral frame motors.

Esco Cabinet Co. 505-507
New front-opening milk cooler employing new principles. Features: both horizontal and vertical ice banks, rapid ice melting, quick cooling of milk to below 50° F., storage compartment refrigerated at all times under normal use. Also to be displayed: "new and improved" freezer models in 13, 16, 20, and 24-cu. ft. sizes.

Eston Chemicals, Inc. 120
"Kulene-131," a new low-temperature refrigerant, and literature covering its physical properties; "Charg-A-Can" packaged refrigerants.

Evans Mfg. Corp. 441, 445
Five 1952 display case models: open self-service vegetable case with new-type sliding storage doors and automatic defrosting; open self-service, triple-tier endless-display case with two individually-refrigerated shelves, one dry top display shelf, and automatic defrosting; a dairy and beverage wall case available with coil or blowers; a full-vision case; an open, self-contained case with automatic defrosting.

Fedders-Quigan Corp. 526, 529
Special demonstration display to show how new Fedders electric dehumidifier removes moisture from air. Dehumidifier will be enclosed in plastic case and vaporizer will fog interior. Then dehumidifier will be turned on to dispel moist fog.

Federal Refrigerator Mfg. Co. 101
Entirely new 6-door supermarket wall-type storage freezer; latest model 3307 supermarket triple-deck dairy display case with removable end for continuous display and three refrigerated shelves.

Fine Products Co. 481
New "space saver," demountable compressor rack accommodating 90% of compressors now on market; packless oil level gauge; packless receiver liquid level gauge; packless liquid indicator redesigned to eliminate the tubular glass; new dehydrator carton providing needed information on end of box; "Hi-Boy" and "Lo-Boy" refrigerant cylinders.

Fogel Refrigerator Co. 549, 553
Display centered on specialized self-service cases for neighborhood stores, and featuring "3-in-1" "Fegmart" produce merchandiser and "Angle Vision" frozen food merchandiser. Company will pay \$100 "reward" to first person who finds "Miss Fogel Refrigerator—Booth 553" inside booth area of exhibition halls during show, who says to her "You are 'Miss Fogel Refrigerator—Booth 553,'" and who then escorts her to the Fogel booth for identification. Descriptive clues will be posted at company booth.

Frick Co. 325
Two "New Eclipse" compressors (4 and 9-cylinder) and 5-hp. unit air conditioner. Four-cylinder compressor will be cutaway and turned over slowly by small motor to show action of moving parts. New 9-cylinder machine handles

"Freon-12" for producing 90 tons of refrigeration on air conditioning work.

Frigidaire Div., General Motors Corp. 107
Big product display presenting representative models of commercial refrigeration and air conditioning equipment.

Russell R. Gannon Co., Inc. 478
"Inertia System" for air conditioning—"economical, speedy method of producing cold water for simplified air conditioning."

Gates Rubber Co. 409, 413
Demonstration of how Gates V-belts protect refrigeration and air conditioning equipment against shock and vibration.

General Controls Co. 341
New group of refrigerant distributors, including flanged fitting solenoid valves, high-flow, three-way solenoid valves, "Freon-22" controls, mobile refrigeration equipment controls.

General Electric Co., Air Conditioning Dept. 309, 311
New 3-hp. packaged air conditioner with muggy weather control, and new window-mounted room air conditioner.

L. H. Gilmer Co. 320
Shock pad for checking vibration and vibration noise on household and light commercial equipment.

Halstead & Mitchell A-108
New induced draft cooling tower, combination condenser-receiver, cooling tower condensers.

W. A. Hammond Drierite Co. 476
Samples of "Drierite" as furnished to refrigeration trade in both granular and moulded forms.

Heat-X-Changer Co., Inc. 238
Working demonstration of new combination condenser re-evaporator used in "Therm-o-cycle" system of hot gas defrost; "compressor-water cooler" assembly for remote installation; Heat-X longitudinal finned tubing; combination air and water-cooled condenser for remote installation.

Henry Valve Co. 460
Packed and packless valves, driers, strainers, liquid indicators, quick couplers, relief valves, compres-

sor valves, ammonia valves, steel fittings.

Highside Chemicals Co. 411
"Leak Lock," new joint sealing compound especially developed for refrigeration use and containing special polyhydroxylated plastic base; three displays showing how "Thawzone" works.

C. V. Hill & Co., Inc. 537
Institutional-type display with background of enlarged photographs showing typical Hill installations throughout country.

Holsclaw Brothers, Inc. 406
New one-piece combination bender for bending $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, and $\frac{1}{4}$ -in. o.d. tubing, in price range of single-size bender.

The Hoover Co. 480
New Nema "C" face mounted integral horsepower motors. Built in standard Nema frames and offered in single phase, integral horsepower ratings through 3 hp., 3,450 r.p.m., and in polyphase integral horsepower ratings through 5 hp., 3,450 r.p.m. Two basic varieties available, horizontal and vertical.

Howard Refrigerator Co., Inc. A-476
New 6-ft. beverage cooler (BSC-39),

dairy display case (OD-71), dough retarder freezer (DR-36), frozen food display case (DS-145), milk and dairy display case (OT-48G).

Howe Ice Machine Co. 506
New rapid freeze unit cooler model RF-50; 15-ton capacity booster compressor, "Polar Circle" fin coil. Also, 20-ton ammonia compressor, 8-ton compressor, double fan unit cooler, shell and tube "Freon" condenser.

Hubbell Corp. 322-324
Water cooling unit in operation to demonstrate compensated back pressure regulators. Visitors will be able to close off water and see action of valve and how temperature of water "will remain the same regardless of the volume of water going over this unit." Also, cutaway of valves.

Hussmann Refrigeration, Inc. 213
Special background showing continuous-type refrigerated multiple-deck dairy case (colored blow-up photo) as used in retail grocery store; air and water-cooled 1-hp. condensing unit.

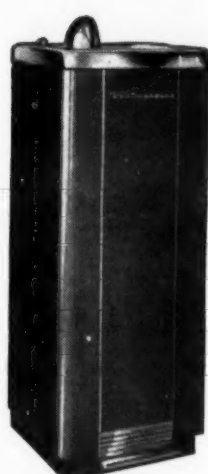
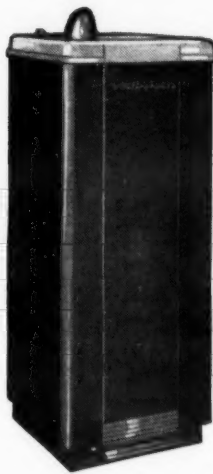
More Previews on Pages 18 & 19

SEE

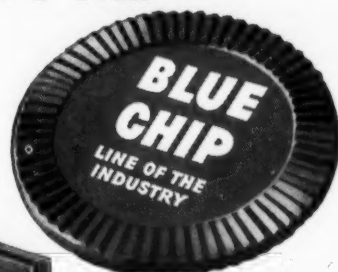
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Unique Forum Taps 'Gold Mine' of Ideas on Engineering Practice & Theory In Refrigeration & Air Conditioning

By C. Dale Meriele

PHILADELPHIA—When to use centrifugal machines instead of reciprocating compressors; when to install multiple condensing units; the pros and cons of bare pipe vs. finned coils; the prospects for new types of refrigerating oils?

These were some of the several questions covering a rather wide range of subjects that were brought up and discussed at a unique question-and-answer forum staged by the Philadelphia section of the American Society of Refrigerating Engineers to open its 1951-52 season.

Besides getting answers and opinions from a panel of five recognized authorities, questioners also learned of such things to come as a new oil for high temperature refrigerating systems which is promised to be commercially available in six months.

5 Experts on Panel

The latter hint came from Dr. Edgar S. Ross of the Sun Oil Co., a member of the panel which also included Charles S. Leopold, widely known consulting engineer on air conditioning; Victor Smith, chief engineer of C. V. Hill Co.; Richard M. Armstrong, president of the Richard M. Armstrong Co. of West Chester, Pa., manufacturer of heat transfer equipment; and Walter Chalsen, head of the Lessner Co., Philadelphia contractor.

Moderator for the evening was Charles Segal, chief engineer of Kramer Trenton Co., program chairman for the section. The five men who comprised the panel are likewise members of the Philadelphia section. The section's approach to the

forum differed somewhat from the usual forum technique in that no formal talks were given by panel members to open the discussion. Instead of a preliminary warm-up period, the session started right out with members firing questions at the panel.

Most of the questions and answers are given here grouped more or less logically according to subject rather than in the chronological order in which they were asked. The very first question, however, involved air conditioning, so here are Leopold's answers to the first and others on the subject:

Air Conditioning

Q. On what size installation would you recommend the use of by-pass control instead of the conventional on-off method?

Leopold: "You should use the by-pass method on any job where you want good control of humidity, regardless of size, except possibly where you have a high internal sensible heat factor."

Don't Worry About Return

Q. Do you subscribe to the adage that "if you take care of the supply, the return will take care of itself?"

Leopold: "In general, yes. The chief consideration is to insure the absence of draft. I'm assuming, of course, that you have both adequate supply and return. There is a possibility that with low supply you can have short-circuiting, but this is generally no great problem so you don't have to worry about the return. In modern multi-story buildings, however, you must have an exhaust fan."

Q. What about the heating problem?

Leopold: "Generally, hot air and cold air don't mix very well. You must use air with a moderate temperature difference. The trick is to use a lot of air at low [by conventional heating standards] temperature. But it's usually cheaper to install a big oil burner than a big fan. The usual 100° F. rise—170° F. bonnet temperature—is too much for mixing air."

Q. When figuring the heat load for air conditioning a supermarket, must you take into consideration the presence of open cases?

Leopold: "You can take these open cases into account if you wish, but the saving on the load is very small."

Smith: "Theoretically, these open cases should cut the load to 75%, but from the practical standpoint you could probably allow no more than a

10% reduction in load so I'd merely throw it in as a safety factor."

Leopold: "The average air conditioning system operates at no more than 90% or less of its rated capacity, anyway."

Q. What is the advisability of using multiple compressors on systems in the range of 50 to 200 tons?

Leopold: "If it's not a critical job, the average system might be better off using a single machine with 25% capacity modulation. Since it will be used at most no more than 800 hours a year, economics would dictate the one machine."

When To Use Centrifugals

Q. What is the maximum size of reciprocating compressor that can be used before jumping to the centrifugal type machine?

Leopold: "Ten years ago the dividing line was generally 200 tons. This has been dropping in recent years and may be down to 150 tons."

Q. Are you considering any difference in maintenance requirements between the two machines?

Leopold: "If you're going to cool brine or water, it's centrifugals in spades over reciprocating compressors. Actually, though, the question should be direct-expansion reciprocating vs. water-chilling centrifugals."

Heat Transfer

With Armstrong on the forum panel, there were questions on heat transfer directed at him:

Q. Is there anything besides space and economics that dictates the choice between bare pipe and fin coils?

Armstrong: "Yes, there are three factors to be considered: dirt, corrosion, and the availability of finning materials."

Leopold: "On finned tube you're working the water side much harder. Therefore, the dirt factor becomes more important."

Armstrong: "Corrosion attacks thin fins at a much higher rate than bare pipe."

What Is 'Fouling Factor'?

Q. Suppose you sell a shell-and-tube condenser with a .0005 fouling factor but the installation turns out to have a .0001 fouling factor. Would the condenser require a considerable extra safety factor?

Armstrong: "We figure in addition to the standard fouling factor since we assume there may be considerable fouling. The .0005 figure is too small in our opinion."

Q. What does "fouling factor" mean?

Armstrong: "Resistance to heat transfer, so .0005 equals 1/2000 k factor."

Q. How do you determine quickly by looking at a tube its fouling factor?

Armstrong: "You can't."

Q. What are the respective advantages of wet coils and dry coils?

Armstrong: "It depends on the fin and coil spacing. If the latter is greater, you can increase heat transfer."

(Concluded on next page)



INFORMALITY and "straight-from-the-shoulder" answers featured an open forum session staged by the Philadelphia ASRE section with this panel of top-flight authorities: Dr. Edgar S. Ross, Richard M. Armstrong, Charles S. Leopold, Walter Chalsen, and Victor Smith. Moderator was Charles Segal.



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Atomized air keeps food best
Directional flow cuts power costs
And
Recirculated air saves on running time, uses cold air over and over, instead of drawing in a continuous fresh supply of warm air...

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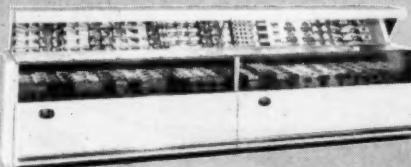
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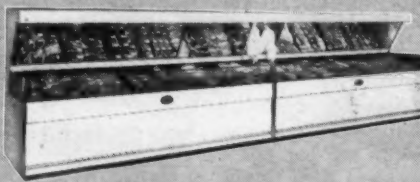
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Problems Involving Oil, Sliming of Meat Also Aired at Philadelphia ASRE Forum

(Concluded from preceding page)

fer a little with sprays, but the results are disappointing."

Oil

On the subject of oils, answers to questions came largely from "Doc" Ross:

Q. What is the petroleum industry doing about oils for the extremely low temperatures—down to -200° F.—that the refrigeration industry is running into today?

Ross: "We know that mineral oils have definite limitations as to viscosity. There are, however, synthetic oils that have flat viscosity curves, although they lack some other desirable properties. That is the trend. We are, I admit, a little behind the demand, but if we all keep plugging, we'll have the answer."

Q. What about the dilution of oil by the "Freons"?

Ross: "With some 'Freons' oil is perfectly miscible so 'Freon' keeps oil in fluid state. If you have a refrigerant with which oil is not so miscible, the practice is sometimes to use in addition a small amount of refrigerant that is very miscible with oil. For example, 'Freon-12' is miscible with oil in all proportions. Thus, very small amounts of 'Freon-12' have been used with 'Freon-22' to keep oil viscous."

Thompson (R. J., of Kinetic): "Don't go beyond 2 or 3% of 'Freon-12' when you're using it to keep oil fluid in a 'Freon-22' system."

Q. Besides using oil as a lubricant, can it be used as a cooling agent for a compressor with a water-cooled condenser?

Ross: "The use of mineral oil as a cooling agent is a common practice in many industries."

New Oil Promised

Q. What is going on in the realm of oils for use with high temperature refrigerants?

Ross: "The industry will be much better informed on this subject in the next six months. Something new will be commercially available then."

The problem is primarily a question of stability."

Q. Is it advisable to place an oil trap in low-temperature systems?

Ross: "No matter what temperature the system may be operating at, if conditions are such that they cause oil to accumulate where it doesn't belong, put in an oil separator."

Smith: "I agree except in hot gas defrost systems where the hot gas flushes out the oil."

Meat Cases

One question regarding a specific application problem in the fixture field brought several people into the act. The question:

Q. In a 10-ft. double-duty case which in normal use had a 1/2-hp. compressor, a 1/2-hp. compressor was installed without increasing the coil capacity. There's not too great a service load, but the meat becomes sticky and slimy. Why?

Smith: "I'll confess that I've never fully understood this myself. I've seen jobs where greater capacity has given no greater humidity than normal."

Q. Have you tried stronger lighting in the case to give a reheat effect and thus balance the larger compressor?

Smith: "With stronger lighting you run into the fading problem."

Leopold: "Whenever you use on-off control instead of reheat you are accepting a compromise."

Q. What's your opinion on using bactericidal lamps to combat slime?

Smith: "From the practical standpoint the lamp loses its value quickly when used below 40° F. Therefore, it is merely insurance. The lamp has a definite value in ageing beef at higher temperatures, however."

Segal: "One point that might have a bearing is that if you have a large mass pulled down to 32° F., say, then you shut the compressor off and the air temperature goes up to, say, 40°, when the box is opened, humidity increases. The meat, being cold, will cause moisture to condense on it. When the store isn't doing enough business, too great a temperature differential may build up."

Pennsylvania Railroad Installs 5 Food Vending Machines

Coin-Operated Units Tried In Washington-N. Y. Coaches

NEW YORK CITY—Five automatic, coin-operated food vending machines were recently given a 30-day test on day coaches between New York City and Washington, D. C. by the Pennsylvania Railroad, it was reported here.

"The purpose of the experiment," said Homer Bannard, manager of the Pennsylvania's dining car service, "was to find out whether our patrons are in favor of a choice of good things to eat and drink dispensed by automatic machines at any time during their trip."

The machines, specially designed for use on railroad cars, were stocked with fruit drink, milk, chocolate drink, coffee, candy bars, chocolate cake, Danish-type pastry, doughnuts, and roast beef, ham, and cheese sandwiches.

Three of the vendors were constructed by the Rowe Mfg. Co. here and the other two by an unnamed manufacturer.



COIN-OPERATED food vending machines form this automatic buffet on several Pennsylvania Railroad coaches. Units were installed as an experiment by the railroad to test the popularity of having food available at all hours in this convenient form.

Worthington Pump Appoints Laramy Marketing Manager

HARRISON, N. J.—J. B. Laramy has been appointed manager of the marketing research department of Worthington Pump and Machinery Corp. according to W. H. Feldmann, vice president in charge of sales.

Laramy has been assistant manager of Worthington's Chicago district office for the past six years.

G-E Enjoins City Electric for Trade-Mark Infringement

BRIDGEPORT, Conn. — General Electric Co. recently won a permanent injunction against Julius Schwartz, trading as the City Electric Equipment Co. in New York City, restraining Schwartz from infringing General Electric's "monogram" and signature trade-marks.

Suit was first brought against Schwartz in July, 1950, but an injunction at that time was denied on

the grounds that issues of fact had been raised which should be disposed of at a trial.

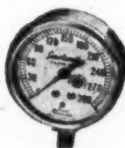
The trial has been concluded and the U. S. District Court in New York has handed down a decision favorable to General Electric.

Schwartz was found to have infringed General Electric's trade-marks by knowingly affixing substantial replicas of them on electric fans.



"Marsh" FITS RIGHT INTO OUR SCHEME!"

With bodies machined from solid bar brass stock, the new Marsh-Electrimatic Solenoid valves give new meaning to quality and dependability.



A team of thoroughbreds for the man who wants the ultimate in testing gauges.



Type WT Marsh-Electrimatic temperature-actuated regulating valve—one of many such regulators.

Twenty-eight years of going-all-out to please their customers has helped the A. E. Borden Co., Inc. of Boston, Mass., and Portland, Maine, grow from a small specialty business into a leading distributor of refrigeration equipment.

The photo above, taken in the Boston salesroom, shows (right to left) Chester Borden, vice president and treasurer, Arthur Timmins, shop foreman, and Frank Johnson of Marsh Instrument Co. Mr. Borden attributed the growth of his business to "adherence to top-quality products; prompt, complete service; close attention to inquiries; speedy movement of orders; and convenient display of lines carried."

"The Marsh line," he added, "fits right into our scheme of things. Our customers for gauges, thermometers and controls know and rely on Marsh, as do we. They want the Marsh line because it's good for them—which means it's good for us and business."

There's an alert distributor, like the Borden Co., on the job in your community ready to supply you with Marsh Instruments and Marsh Electrimatic Valves. Look over some of these popular products here. Then for the complete story:

See Your Jobber

See our exhibit BOOTHS 319-321
NAVY PIER CHICAGO NOV. 5-8

MARSH INSTRUMENT COMPANY, Sales affiliate of Jas. P. Marsh Corp., Dept. D, Skokie, Illinois. Export Dept., 155 E. 44th St., New York, N. Y.

MARSH Refrigeration Instruments



let **KOLD-HOLD** show you
why "serpentine" design cuts
your refrigeration costs

Take a good look at the cross section of a Serpentine Plate in my right hand for it holds the key to refrigeration savings for you. Notice that the channels through which the refrigerant flows are formed by joining a flat metal sheet to an embossed metal sheet. There is no internal tubing or piping so the refrigerant is in direct contact with the surface to provide the equivalent of 100% prime surface. The size of the refrigerant passage and the smooth contour of the return bend reduce pressure drop to the absolute minimum.

Plates can't possibly become clogged or oil logged. So you see, the Serpentine design gives you more efficient refrigeration with less trouble and for less money.

And the flat top surface of the Serpentine Plate is really handy. It adapts itself readily to the construction of shelves, stands and banks to add extra convenience to your holding and freezing rooms.

Why pay more for refrigeration when you get more efficient refrigeration by using Kold-Hold Plates with Serpentine design. Send for full details today.

KOLD-HOLD protects every step of the way



Review of Advance Product Information Reflects What Will Be Coming Next Year

Ideal Cooler Corp. A-110
New flat top dry beverage cooler and frozen food merchandiser, plus 45-case dry beverage cooler, 42-case remote dry beverage cooler, 2 1/4-barrel instantaneous draft beer cooler.

Imperial Brass Mfg. Co. 412, 416, 420
New flaring tool, 2-in-1 tube bender, "Adjust-o-matic" tube cutter. Bender has dual-size shoe and mandrel, will bend either 1/2-in. or 3/4-in. o.d. tubing without changing any part, can be slipped over tubing at point bend is needed, will make bends to any angle up to 180°; mandrel is calibrated to show degree position.

International Register Co. 530
New line of "Inter-Matic" time switches for automatic defrosting; new line of coin meters; standard time switches and coin meters.

Jamison Cold Storage Door Co. 470
New Series "50" cold storage door.

Jarrow Products 205
Toughest and most efficient door gasket yet produced, heavy-duty gaskets for low-temperature applications, standard line of door gaskets.

Jewett Refrigerator Co., Inc. 528
Bevador bottled beverage merchandiser.

Jordon Refrigerator Co., Inc. 287
15-cu. ft. upright freezer, self-service dairy product merchandiser, line of display reach-ins.

Kason Hardware Corp. 414
New "escape" latches for walk-ins and superfreezers.

Kelvinator Div., Nash-Kelvinator Corp. 401, 404, 407, 410
New frozen food merchandiser models and a new refrigeration system for vending machines. Plus belt-driven, open-type and sealed-type condensing units, beverage cooler, air drier, frozen food merchandising cabinets, water coolers, ice cream cabinets, compressors, evaporators, and refrigerant driers.

Kenmore Machine Products, Inc. 424
Accumulators-driers, low-side driers, strainers, screens, accumulators, capillary assemblies, and spun copper tube parts.

Kennard Corp. 301, 303
New multi-zone air conditioning blower unit, heating and ventilating unit, and sprayed coil dehumidifier. In addition, direct expansion, chilled water, hot water, steam, and steam distributing tube coils.

Kerotest Mfg. Co. 242
Valves, driers, and testing outfits.

Kold-Hold Mfg. Co. 127, 129
Icy Bank "hold over" vending cabinet, package unit, and standard line of truck, serpentine, and locker plates and cabinet liners.

Kramer Trenton Co. 418, 422, 426 430
Complete line of various types of condensers including evaporative condenser, cooling tower, and

Unicon (remote-type, self-contained, air-cooled condenser). Samples of 24 different types of fin surface, a working model of the Thermobank system, air conditioning units, blast coils, heat exchangers, radial units, Corvettes, Coolmasters, KT units, double discharge and panel units.

La Crosse Cooler Co. 532, 536, 540
New reach-in refrigerator, self-contained bottle cooler, and all-metal drain board.

Lake Chemical Co. 534
LA-CO non-acid soldering flux in paste form, Pipette-Stik, Flux-Stik, and Plumber Krak-Stik, all in stick form.

Larkin Coils, Inc. 123, 125
Complete new line of air conditioning coils and units and a new small HumiTemp unit for back-bars and reach-ins. Operating models of Frost-O-Trol unit with automatic hot gas defrost and Hydro-Miser cooling towers. Displays of HumiTemp units and fin coils.

Lehigh Mfg. Co. 308, 310
All-electric self-contained truck refrigeration system equipped with automatic hot gas defrost system. Condensing units of the open, hermetic, and truck types.

Lewin-Mathes Co. 227
Wrought copper fittings and return bends as well as seamless copper tubing.

Libbey-Owens-Ford Glass Co. 323
Thermopane unit in both a meat case and an air conditioned pre-packaging room, a transparent mirror, and Vitrolite, LOF's opaque glass wall paneling.

Linde Air Products Co. 459
Demonstration of the oxy-acetylene welding and cutting equipment on display, displays of Halide leak

detector and Prest-O-Lite refrigerant cylinders, and panel showing types of welded pipe fittings and joints.

Lingle Refrigerator Co., Inc. 547
Self-service, self-contained, medium-temperature case with two decks and double-duty, open, self-service meat and vegetable display case.

Lipman Refrigeration Div., Yates-American Machine Co. 552
Operating model of Lipman "Ice Boy" automatic ice tip machine which has only one moving part—a revolving paddle. Displayed will be a Lipman self-contained home air conditioner and a selected model from the company's condensing unit line.

Liquid Freeze Corp. 558
Instant ice machine model SC-250.

Loudon Mfg. & Sales, Inc. 486
New 1952 automatic ice cube machine that makes round, solid cubes, new ice crushers, 48-pan bakery freezer, full-vision glass door reach-in with automatic closing doors, new plug-panel unit (compressor and blower coil) for walk-ins, and 15 and 22-cu. ft. home freezers.

Lynch Corp. 217, 221, 225
R-39 refrigeration pump, a redesigned version of the old S-500 compressor.

Mack Molding Co. 658
Injection, plunger, and compression molded plastic refrigeration components ranging from small shelf supports to complete door frames. Also breaker strips ranging from 2 to 4 ft. in length, crisper trays, separator shelves, and freezer covers.

Madden Brass Products Co. 544
New line of hand tools, new charging line, plus regular line of flare fittings, driers, strainers, and Perfection water regulating valves.

Jas. P. Marsh Corp. 319, 321
New line of solenoid valves, line of gauges, thermometers, and valves.

McCord Corp. 229
New lines of air-cooled domestic and commercial condensers and plate-type condensers, also water-cooled condensers.

McIntire Connector Co. 439, 443
Transparent drier and filter shells installed on operating refrigeration systems, enlarged moisture pick-up charts, displays of heavy-duty driers and filters.

McQuay, Inc. 428, 432, 434, 438
New reverse cycle defrost system, Seasonmaker, evaporative condenser, cooling tower, plus a number of unit coolers, air conditioner, and coil samples, and American Automatic Ice Machine Co.'s Crystal Tip automatic ice maker.

Mills Industries, Inc. 518
Re-designed condensing units in 1/4-hp. air cooled, water cooled, and air and water cooled combinations plus continuous custard and batch ice cream freezer, two-flavor drink vendor, and belt-driven condensing units.

Mitchell Mfg. Co. 417, 421, 425
1952 line of window air conditioning units featuring "Weath'r Dial" and "Sound Muffler," plus electric dehumidifier.

Mueller Brass Co. 212, 216, 220
New straight-through type liquid indicator and complete line of forged or extruded brass refrigeration valves, forged driers, strainers, and filters.

Mystik Adhesive Products 640
Self-Stik Dri-Pipe insulation material.

National Lock Co. A-320
Special and standard refrigeration hardware.

Nevinger Mfg. Co., Inc. A-314
Combination gas-fired heating and mechanical refrigeration air conditioning unit in one cabinet, 5-ton self-contained suspended-type air conditioning unit, and self-contained 5-ton air conditioner.

Pacific Lumber Co. 223
New rigid-type insulation made from bark of California redwoods and Palco wool insulation.

Peerless of America, Inc. 334
New drip-pump, corner unit cooler, and panel coolers plus line of motorized units, flash coolers, fin coils, off-center coils, flash plates, locker plate banks, ice cube makers, heat exchangers, and VL expansion valve.

Penn Electric Switch Co. 131
New oil pressure control for pressure lubricated compressors, automatic defrost controls, humidistats, line starters, pressure and temperature controls, solenoid valves, strainers, thermostats, and water regulating valves.

Philco Corp. 347
Three domestic type room conditioners, home freezer, and two-temperature refrigerator, plus attractive model handing out literature.

Pittsburgh Corning Corp. 486
Foamglas—the cellular glass insulation.

Polar Hardware Co. 448
Low-temperature and cold storage refrigerator hardware for super-freezer and infitting doors, forged brass hardware for service and walk-in doors, and hardware for walk-in coolers.

Presstite Engineering Co. 510
New type plastic sealers, thermal mastics, polyester laminates, sealer washers, cork filled tape, and plastic parts for refrigerators.

Primus Co. 543
Hermetic package refrigeration systems for air conditioning, dehumidifying, beverage coolers, reach-in and walk-in cabinets, and milk coolers.

Pyramid Instrument Corp. 447
New Amprobe split core a.c. voltmeters and dual purpose sensitizer.

Quiet-Heat Mfg. Corp. 519
1951 line of Quiet-Kool room air conditioners.

R. C. S. Tool Sales Corp. 555
New "roughing-in" reciprocating saw which needs no starting hole in "key hole" or other sawing.

Ranco Inc. 433, 437
Complete line of controls including household refrigerator defrosting type controls.

Ready-Power Co. 504
New 55-ton capacity engine compressor, preview of 5-ton engine condensing unit, standby engine generator, and industrial truck engine generator.

Rector Mineral Trading Corp. 509
Portuguese produced cork insulation, cork pipe covering, cork tile, and other insulation products.

Redmond Co., Inc. 103
New military dynamometers, inverters, handswitch motors; Redmond shaded pole motors, and variety of blower units up to 220 c.f.m. output.

Refrigeration Appliances, Inc. 602, 606
New floor type air handling units, ceiling type evaporative condensers, all-copper maritime gravity coils, and remote type comfort coolers.

Refrigeration Engineering, Inc. 126
Animated display of Dri-Fan evaporative condenser, working demonstrations of water defrost and Delta blower coils.

Refrigerating Specialties Co. 503
Three types of condensing water regulators; automatic back pressure regulators; solenoid water, brine, or refrigerant valves; strainers; and automatic pressure reducing regulators for all refrigerants.

Remco, Inc. A-112
"Sensational" improvement in "E-Z-See" liquid indicators, new "Cross-Flo" and standard duty driers with molded Remcal and Fiberglas filter, "Frost-Tite" flare nuts.

Remington Air Conditioning Div. Remington Corp. 449, 453
The 36T mobile cooler, an electrically driven, self-contained 5-hp. air conditioner mounted on a trailer. An air conditioning unit developed to condition the air for a pilot trainer. A new 1/4-hp. window unit and regular line of air conditioners will be shown. Also dehumidifier for factory use.

Resistoflex Corp. 515
Flexible non-metallic suction and liquid lines, Fluoroflex products, refrigeration hose and hose assemblies.

Rochester Products Div., General Motors Corp. 531
Resistance welded, copper fused tubing and resistance welded, copper-plated tubing. Sample condenser coils show applications.

Rotary Seal Co. 113
Rotary Seal replacement units for refrigerator compressors.

Sealed Unit Parts Co., Inc. 408
Line of connecting rods for sealed units. Complete pickling system for burned out sealed unit parts, complete line of sealed unit parts, three sealed units running and freezing to demonstrate capillary tubing and test meters.

Servel, Inc. A-304, A-306
New line of hermetic condensing units including hermetically sealed capillary tube type condensing units. Special cutaways and demonstration equipment on Supermet units.

(Concluded on next page)

BRAND NEW FOR '52

THE Loudon

AUTOMATIC ICE CUBER

MODEL 7030TC

SEE IT at Booth 486

ALL-INDUSTRY SHOW

Bigger storage capacity! Bigger cubes! Paragon time-clock control! These are only a few of the big new features packed into the 1952 LOUDON Ice Cuber.

Mechanically new throughout, the '52 LOUDON cuber is equipped with a 1/2 h.p. pull-out type compressor unit and solenoid valve that can't burn out! All water and sewer connections have been moved to the side. A new water valve cuts water consumption to a minimum.

Don't fail to see the new LOUDON Automatic Ice Cuber at Booth 486, Navy Pier. It's the cuber that will lead the industry in '52!

MANUFACTURING & SALES INC.
COMMERCIAL REFRIGERATION EQUIPMENT
 2524-27TH Avenue South, Minneapolis, Minnesota

More All-Industry Highlights

(Concluded from preceding page)

- Ever-Gillett Co.** 471
Open display case for packaged meats, produce, or dairy products, frozen food display case, and a sliding door, wall-type, reach-in.
- Snowhill Mfg. Co.** 546
New water-cooled evaporative condenser in sizes up to 2 tons.
- Spencer Thermostat Div., Metals & Controls Corp.** A-328, A-332
New Klixon hermetically sealed defrost thermostat plus Klixon dome mounted protectors for hermetics, motor starting relays, snap-acting thermostats, circuit breakers, and safety shut-off valves for gas refrigerators.
- Sporlan Valve Co.** 119, 121
Working model of "Level-Master" liquid level control, Type W thermostatic expansion valve, large capacity solenoid valve, and new series Catch-All filter driers. Also line of thermostatic expansion valves, automatic expansion valves, refrigerant distributors, solenoid valves, modulating pilot controls, driers, and strainers.
- Standard Refrigeration Co.** 114
Adjustable capillary valve for low-pressure refrigerants, shell and tube condenser, and cleanable counterflow condenser. Also displayed are complete line of condensers, household evaporators, large finned tubing, and Chicago seals and valve plates.
- Emil Steinhorst & Sons, Inc.** 240
New line of home freezers, refrigerated tank for bulk milk cooling, "Kool Kwick" spray system for immersion-type milk coolers, spray-type, side opening milk cooler, and "Chilly Willy" the icicle man.
- Sub-Zero Freezer Co., Inc.** 457
Refrigerated centrifuge for study of polio and cancer, -90° F. low-temperature test cabinet, and freezer and milk cooler lines.
- Sun Oil Co.** 202
New technical information on refrigeration oils.
- Superflow Mfg. Co.** 516
New beverage dispensing system for bulk drinks, the standard PK2 package for conversion installations using "Pressuretrol" tap rod.
- Superior Valve & Fittings Co.** 239
Liquid indicators, ammonia relief valves, globe and globe check valves, dehydrators, fittings, and installation accessories.
- Sweden Freezer Mfg. Co.** A-466
Cutaway of a Sweden freezer; new continuous freezer, batch freezer, and Frigimixer for milk shakes and malts. Standard table model freezers.
- Swift Mfg. Co., Inc.** 446
Fan blades, plated hardware, and something new????
- Techniflex Corp.** 556
Dehydrators, heat exchangers, line check valves, sight glasses, capillary tube and strainer, vibration eliminator, Nylo-flex charging line, rubber mounts, door gasket notches, door gaskets, purging hose, sponge rubber tubing, and quick coupling connectors.
- Tecumseh Products Co. and Universal Cooler Div.** 108, 110
New line of hermetics to 1 hp. with operating plastic compressors in smaller sizes, 4-cylinder compressors, cutaways of new "V" type compressor, twin compressor, and 15-hp. compressor.
- Temprite Products Corp.** 338
New remote and self-contained commercial water coolers, cutaway of drinking water cooler, plastic operating model of carbonator, line of automatic car-

- bonators, instantaneous liquid coolers, refrigeration accessory equipment.
- Tenney Engineering, Inc.** 124
Complete line of low-side equipment, aluminum ice cube maker.
- The Texas Co.** 211, 215
Texaco Capella oils, wax free, stressing lower pour, haze, and flocc points.
- Transaire Mfg. Co., Div. of Penn Electric Motor Co.** 542
Replacement fan assembly for hermetic units designed to replace 95% of existing condenser fans.
- Tyler Fixture Corp.** 105
1952 model open style frozen foods case, self-service meat case, three shelf dairy case, produce case, display table, reach-through reach-in, reach-in, beverage cooler, and home freezer.
- Typhoon Air Conditioning Co., Inc.** 328, 330, 332
Operating model of Prop-R-Temp heat pump unit, multi-package air conditioning system of 40 to 60 tons capacity, and remote water chilling equipment.
- Uniflow Mfg. Co.** A-324, A-326
New soft drink dispenser with three-way faucets.
- United Refrigerator Co.** 343, 345
New under-counter bottle cooler, 30-cu. ft. upright freezer, and small ice cube maker. Standard reach-ins, freezers, ice cube makers, bottle coolers, and direct-draw beer dispensers.
- United States Air Conditioning Corp.** 316, 318
New dual circuit refrigerated Kool-

- er-aire unit, 1952 line of window air conditioners, upright store conditioner, and recessed style Modu-aire heating and cooling unit.
- United Wire & Supply Co.** A-114
Copper and aluminum tubing, packaged copper tube for wholesale and service trade, and brazing products.
- Velocity Power Tool Co.** 538
Velocity power driver which drives a steel stud into concrete, wood, or steel.
- Victor Products Corp.** 106
New "spot" merchandisers plus quick freezers, beverage coolers, milk coolers, reach-ins, and walk-ins.
- Victory Metal Mfg. Co.** 464, 466
New stainless steel dough retarder and salad unit, plus stainless steel refrigerators, sandwich units, beverage coolers, wall cases, and direct-draw beer units.
- Viking Copper Tube Co.** 485
Bright annealed, dehydrated refrigeration tube with sealed ends, also custom fabricated tubular parts. Prize contest for guessing exact length of tubing in roll on display.
- Virginia Smelting Co.** 233
Presstite tape demonstration, refrigerants, sealing and insulating compounds, and refrigeration oil.
- Henry Vogt Machine Co.** 468
200-lb. capacity automatic tube-ice machine mounted on ice storage bin.
- Wabash Mfg. Co.** 235
New dehydrator and/or strainer in capillary tube combination, line of hermetic driers and strainers with solder connections, conventional dehydrators, capillary tubes, oil separators, high side floats, and speed couplers.

- Wagner Electric Corp.** 234
Combination of motor and increment-type starter with demonstration of increment-type starting of polyphase squirrel-cage motors. Also other types of motors.
- Wagner Tool & Supply Corp.** 603
Gas to electric conversion kit for absorption system refrigerators, 1-cu. ft. midget refrigerator, new line of spun end strainers, spun end restrictor tubes, two domestic refrigeration units converted from SO₂ to "F-12" using Strain-O-Kap metering device, magnetic check valves, Nu-Bead replacement door gaskets, Fiber-Loy vanes for Coldspot, sealed unit flappers, check valves, terminals, tools, and solvent.
- The Warren Co., Inc.** 336
Combination self-service vegetable case with sliding door dairy section and refrigerated storage in bottom, self-service freezer, and spot freezer with mirror and lighted canopy.
- Westinghouse Electric Corp.** 109, 111
Water coolers with storage compartment and milk coolers.
- White-Rodgers Electric Co.** 231
Ice bank control, defrost timers, air conditioning thermostats and controls, refrigeration temperature and pressure controls.
- Wilson Refrigeration, Inc.** 236
New home and farm freezer models, new dry beverage cooler, "Zero-Spray" front-opening milk cooler, upright frozen food and ice cream storage cabinet of sectional design, and chest-type freezers.
- Wolverine Tube Div., Calumet & Hecla Consolidated Copper Co.** 122
New merchandising slants for wholesalers, samples of all tubular products manufactured by Wolverine.

Auction Sale Raises \$6,000 To Install Air Conditioning At Pawnee County Hospital

PAWNEE CITY, Neb.—A successful auction was held in October at the Pawnee City Sale Barn to raise \$6,000 for installation of air conditioning in the Pawnee County Memorial hospital.

President C. A. Davis of the hospital board said the building will be ready for dedication in November. Pawnee City businessmen also contributed \$1,500 in cash and merchandise in one week for the hospital.

John M. Dumser To Assist Wolverine Gen. Sales Mgr.

DETROIT—H. Y. Bassett, vice president and general manager of the Wolverine Tube division of Calumet and Hecla Consolidated Copper Co., announces the appointment of John M. Dumser as assistant to the general sales manager, George D. Potter.

Dumser will make his connection with the company on Oct. 15, 1951, and will headquarter at the company's general sales offices in Detroit.

MISSING SOMETHING?

More and better useful information is yours for the asking. See "What's New" page. Use Key No. for fastest service.

WILSON the line with a future

FARM MILK COOLERS Three basic types . . . Sizes 2 to 24 cans

HOME AND FARM FREEZERS A variety of sizes in Chest and Upright types

COMMERCIAL REFRIGERATION A growing line of normal and low-temperature refrigerators

See this outstanding line and get the details on
WILSON'S "FRANCHISE WITH A FUTURE"
at Booth 236 at the All-Industry Show, November 5-8

If you can't make the show write for full information

Wilson Refrigeration, Inc., Smyrna, Delaware

Farm Milk Coolers • Food Freezers • Commercial Refrigeration

TYPHOON

Most Complete Line of
AIR CONDITIONERS
in the most popular size range
1½ TO 20 TONS

Evaporative Condensers
3 TO 20 TONS

Backed by more than 40 years
of air cooling experience

TYPHOON Air Conditioning Co., Inc.
704 Union Street, Brooklyn, N.Y.



How Refrigeration Service, Contracting Firms Should File Prices

Method for determining the highest prices charged during the base period (Dec. 19, 1950 to Jan. 25, 1951 inclusive):

LABOR \$..... per hour
\$..... minimum per call
\$..... per hour thereafter

MATERIAL: If your base period prices were based upon a flat rate per job manual or similar pricing manual or parts catalog or list, you may (instead of appending it to the statement) clearly identify on the statement such manual, parts catalog, or list by name, edition number and date, indicating the instances in which it was not your practice in the base period to follow it.

FILING: File a duplicate of your statement with the appropriate OPS district office.

SIGNATURE: Do not fail to attach your signature to your statement before sending it to the District Office.

POSTING: Post a copy of your ceiling prices where your customers can see it.

OPS Says It Is Ready To Help Anyone Who Has Problems After Reading This Article

WASHINGTON, D. C.—Have you filed your ceiling prices with the Office of Price Stabilization?

The question is directed to refrigeration and air conditioning companies which deal in services, and so are required by Ceiling Price Regulation 34 to file a statement of ceiling prices with their District OPS office.

OPS officials estimate that only about one in 10 service companies

and contractors has complied with this requirement, even though the deadline for filing was June 16.

If service firms continue to delay in filing, they are in danger of being indicted for price violation. They and their customers are equally liable if charges of price violation are brought. CPR 34, regulation for all services, states:

"(1) You may not sell any service covered by this regulation at a price

higher than your ceiling price.

"(2) No person in the course of trade or business may buy any service covered by this regulation at a price higher than the ceiling price."

If a customer feels that he has been over-charged for a service and, realizing that he is liable for making the purchase, reports the matter to the Office of Price Stabilization, then OPS will look in its files for a copy of your ceiling prices. If it isn't there, you're in trouble and subject to legal action.

Three stores were recently cited by Federal Court in the state of New Jersey for alleged price violations. The firms are Queens Jewelry Co. of Hoboken, the Public Refrigeration

Sample Letter

(On your letterhead)

Service Branch,
Office of Price Stabilization

Street.....

City.....

Gentlemen:

We are in the refrigeration service business. The method we used for pricing our services in the base period from December 19, 1950 to January 25, 1951 is as follows:

1. Labor: Our labor was charged for at the rate of \$3.00 minimum for the first ½ hour or less; \$4.00 per hour thereafter. This includes travel not to exceed miles one way. To this is added 15 cents per mile one way where it is necessary to drive beyond the distance specified.

2. Materials: Nearly all parts and supplies were charged for at the price shown in Never Fail Wholesale catalog No. 241 dated November, 1950.

Such materials that could not be purchased through the above company were charged for at the lawful price paid our purveyors plus our regular markup of 40%.

Very truly yours,

.....
(Firm name)

By
(Title owner, manager, etc.)

YOUR LETTER TO OPS in connection with filing your ceiling prices should follow this form. The only difference is that it should be on your firm's letterhead and contain the facts and figures pertinent to your own operations.

Service of Patterson, and Washington Outfitters of Newark.

All were charged with failing to file pricing charts despite repeated requests and warnings by OPS. An order signed by U. S. District Judge Thomas M. Madden requires the companies to show cause why an injunction stopping sales of items which should appear on pricing charts could not be issued.

"CPR 34 is easy to comply with and simple to understand if you will take just a little time to read it carefully and study those sections which apply specifically to your type of business," the OPS says to service firms.

"All it requires is that you type a simple statement on your letterhead, stating the kind of business you are in, such as refrigeration service business, refrigeration contractor, refrigeration sales and service, etc., and the method you used in charging your customers for the work you did for them during the 'base period,' Dec. 19, 1950, to Jan. 25, 1951, inclusive.

"The charges you made at that time must be backed up by your invoices and records, which must be retained in file and which become evidence of the charges you made during that base period.

"In your statement to OPS, list your hourly rates charged the customer. If your charges for labor were on a straight hourly rate, state just that. If you had a minimum charge, state the minimum followed by the hourly rate. If you made a charge for mileage to and from the job, state the rate you charged per mile.

"If you used flat rates for rebuilding such components as motors, compressors, controls, hermetic units, etc., it would be advisable to make up a catalog sheet of the prices you charged during the December-January period. Give it an identifying number and date, then place it on file as evidence of your prices during the base period. Refer to this catalog sheet in your statement to OPS, but do not attach a copy of the catalog to your statement.

"Under the prices you charged for parts and materials, you can again refer to and identify a catalog (do not attach), if all your parts are bought through one source and the prices in that catalog are the prices charged your customer. If you buy your parts and materials from several sources and their catalogs show net prices, you can make a statement such as the following:

"Materials were charged for at the lawful price paid our purveyors plus our regular markup of .. per cent."

"For example: Let's consider you are a service company who during the December-January base period were charging your customer \$3.00 minimum per call, which covered

time on the premises of ½ hour or less. For calls requiring more than ½ hour, you charged at the rate of \$4.00 per hour.

"You bought your parts and supplies from the Never Fail Wholesale Co., but there were some materials which you purchased from miscellaneous sources outside of your wholesaler. When called on to travel distances exceeding the distance included in your minimum charge, you made a charge of 15 cents a mile one way to cover the cost of driving your car. A suggested letter to OPS stating your price structure would be as illustrated in this article (See letter).

"When you have completed your statement on your letterhead and attached your signature to it, send a copy of it to your district OPS office, then hang another copy of it in a prominent place in your place of business. You are then in compliance as long as you figure your prices on the basis of the labor and materials costs specified in your statement.

"If you are in need of any further help in establishing your ceiling prices, call on your local OPS office and you will find its representatives cooperative and willing to assist you."

REFRIGERATOR DOOR GASKETS

JARROW PRODUCTS

Pocket GASKET SELECTOR

ACTUAL SIZE CROSS SECTIONS

Free TO SERVICEMEN AND CONTRACTORS

Get your Gasket Selector from your Wholesaler or write:

JARROW PRODUCTS

50 NORTH LA SALLE STREET • CHICAGO 10, ILL.

AIRO stands for

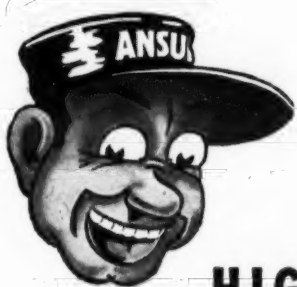
Fast, dependable, world-wide service.

Refrigeration and Air Conditioning parts and supplies.

Write for current Catalog

AIRO SUPPLY CO.

2732 N. Ashland Ave., Chicago 14, Ill.



HIGH
STABILITY



LOW
WAX..

THE FINEST
REFRIGERATION
OIL
at any price!



..AND
LOW MOISTURE, too!

...of course... it's ANSUL REFRIGERATION OIL

THE NEW ... IMPROVED ... ANSUL REFRIGERATION OIL ... IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGERATION TECHNICIANS FOR THE FINEST QUALITY REFRIGERATION OIL ... AT ANY PRICE!

Since Ansul Refrigeration Oil was introduced in 1949 ... its acceptance by refrigeration men has continued to expand. In only two short years Ansul is one of the leading refrigeration oils sold exclusively through Refrigeration Wholesalers.

The New ... Improved Ansul Refrigeration Oil is now available at leading refrigeration-wholesalers everywhere. It meets, or surpasses, every specification established by Ansul Research for a high quality refrigeration oil.

BUY IT AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

NOTE THESE OUTSTANDING ANSUL OIL FEATURES

*Lower floc point.
*50% lower wax content.

Moisture — ANSUL CONTROLLED minimum.

*Lower pour point.
Rigidly checked for high stability.

*Lowest affinity for moisture.

New low price.

Available in quart, 1-gallon and 2-gallon cans; also in 5-gallon and 55-gallon steel containers.

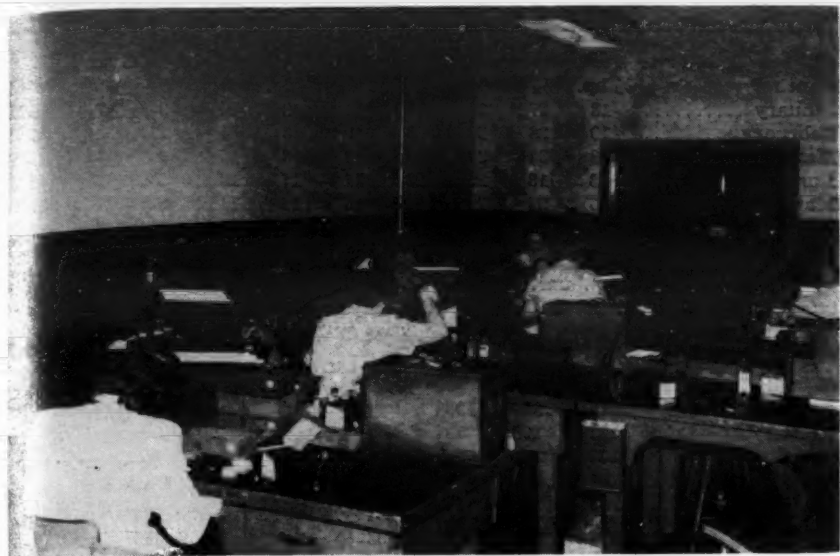
*Improved features

Ansul has greatly increased its Research facilities — expanded its Research Program — and added new modern Pilot Plant facilities to better serve the Refrigeration Industry.

ANSUL
CHEMICAL COMPANY
REFRIGERATION DIVISION
MARINETTE, WISCONSIN

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE
ANSUL OIL • KINETIC "FREON" REFRIGERANTS

ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS



TECHNICIANS AT WORK cleaning fire control lenses in one of six rooms in the air conditioned optical shop at the Erie Ordnance Depot at Lacarne, Ohio. In these rooms where even a minute particle of dust on a lens cannot be tolerated, temperatures are held at a constant 70° F. with a relative humidity of 45%. Located on one side of a warehouse now used as an artillery repair shop, the optical shop is completely blocked off from the remainder of the building except for a single entrance. There are no outside windows and all light is from overhead fluorescent fixtures.

By John O. Sweet and George M. Hanning

LACARNE, Ohio—Cleaning and repairing optical lenses for military fire control instruments—such as gun sights and range finders—requires close control of temperature, humidity, and dust.

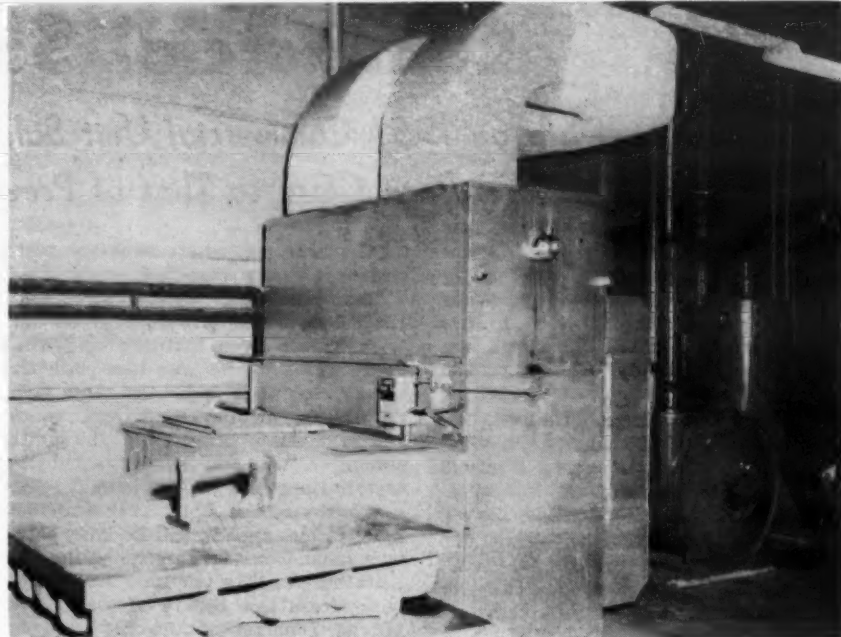
At the Erie Ordnance Depot near here, where such instruments are sent from all over the country, atmospheric conditions in the optical shop are controlled by a 15-ton air

conditioning system which includes an electrostatic precipitator.

But even this system is not adequate for the maximum dust control required in the shop, so a 10-hp. vacuum cleaning system is used in conjunction with air conditioning.

The optical shop is located in one end of a large warehouse, and is completely walled off from the rest of the building except for one

PRECISION INSTRUMENTS Require Precise, Controlled Conditions



THIS 15-TON air conditioning unit (condensing unit outside of picture at left) with electrostatic precipitator is located just outside the optical shop. Air passes first through mechanical filters and then through electrostatic filters.

entrance. Window openings were boarded up to cut down on heat load and outside light.

The shop consists of a row of six rooms in a 2,000-sq. ft. area, connected by a corridor down the interior side. An overhead duct along this corridor feeds conditioned air into the various rooms, which are illuminated by fluorescent lights. The corridor itself is used for an air return chamber.

Powered by a 15-hp. Frigidaire condensing unit, the air conditioning system maintains a temperature of 70° (plus or minus 2°) and a rela-

tive humidity of 45% (plus or minus 5%). A Barber-Colman temperature control system is used, with a thermostat and two humidistats located in the controlled area.

The air conditioning equipment was installed on the opposite side of the corridor wall. Percentage of outside air being used is controlled by a damper.

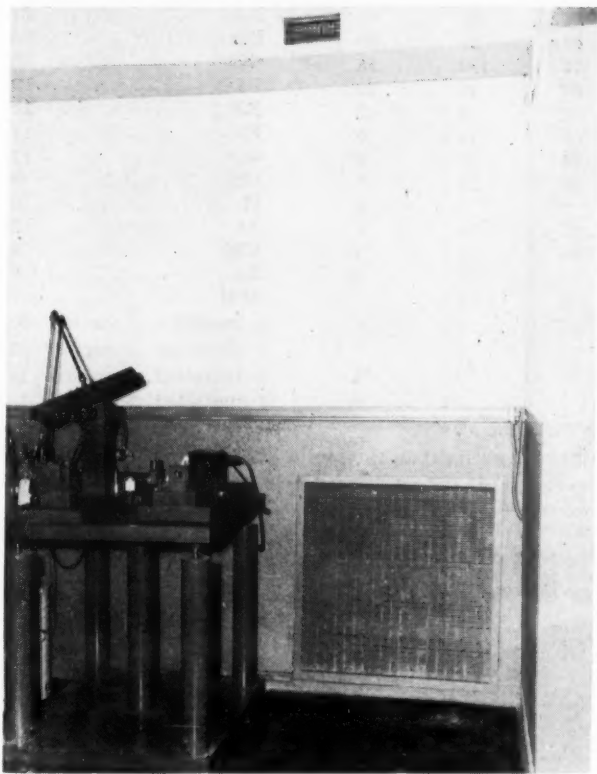
Air passes first through mechanical "Dust-Stop" filters and then through an "Electromaze" electrostatic precipitator before entering the cooling section of the system.

Despite use of these two types of

filters, some microscopic dust particles still remain in the air and then adhere to floor, walls, and ceiling of the shop.

These minute dust particles can be very troublesome in sensitive magnifying lenses and prisms, according to James Stewart, chief ordnance engineer at the depot.

Therefore, such troublesome particles are removed periodically by means of suction tubes connected to a 10-hp. Spencer Turbine vacuum producer and centrifugal separator—located adjacent to the air conditioning equipment.



CONDITIONED AIR is fed into the optical shop through grilles in a single long duct that extends along the ceiling of a corridor connecting the six rooms. The air return grille is shown at the bottom of the picture. This duct leads directly into the mixing chamber of the air conditioning equipment which is located on the opposite side of this wall.

TYPES of TUBING for all INDUSTRY



CHOOSING the right type of tubing is not as easy as A-B-C, for many important factors must be taken into consideration. The type may seem right, but the quality may vary—the wall may not be uniform—invisible properties may block production schedules. Standardize on Penn whose only aim is to draw the finest aluminum and copper tubing, precision made for your industry. Penn tubing is quality controlled and carefully engineered for perfect uniformity. Don't get the impression that quantities of Penn tubing are unlimited—but rest assured that your allotment of Penn tubing will be the only quality Penn draws—the finest. Plan Penn into your product now—write us your requirements and let us help you determine the type you need.

Men who work with tubing know Papco tube tools are tube savers. Send for colorful literature showing how you can get more from your tubing allotment with Papco tube tools.

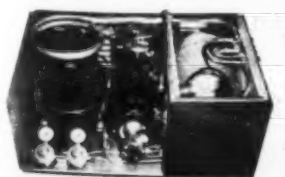


QUALITY TUBING HAS A "PENN NAME"
PENN BRASS & COPPER COMPANY
ERIE • PENNSYLVANIA • TELEPHONE 3-1137

Super Soda



- Fully Automatic Operation
- Saves Valuable Space
- Simple to Install
- Revolutionary in Design
- Full Factory Warranty



It's Ready!
It's Here!

REFRIGERATED
SODAS FROM
ONE FAUCET!

COMPLETELY AUTOMATIC

"Super Soda"
UNIT

COMPACTLY BUILT

• 3 in 1 Finger Tip Control Refrigerated
Faucet — dispenses perfectly mixed
sodas automatically.

• Compact Condensing Unit — Heat Ex-
changer — Carbonator — Pump and
Motor — all in one cabinet of heavy
gauge steel.

Write for Franchise Details

SUPER DISPENSER MANUFACTURERS, Inc., 218 State Street New Haven 10, Conn.

Commercial Sales

Data on 1951 Commercial Unit Sales In Detroit
Shows Pace Close to That of Previous Years

DETROIT—Installations of commercial refrigeration condensing units in Detroit during the first half of 1951 were running close to the record pace set in 1949 and 1950, according to a study made by AIR CONDITIONING & REFRIGERATION NEWS.

In the first six months of this year, a total of 925 such units were installed, a check of permits issued by the city's Department of Buildings and Safety Engineering shows.

This figure compares with the 1,090 installed in the first half of 1950; 1,009 in the corresponding period of 1949, and 854 in the first half of 1948.

Data Covers Sales In City

The data obtained from the permits primarily covers installations of remote condensing units and is confined to those made within the city limits. The figures will run short, therefore, of those for the total metropolitan area, but do give a good indication of the trends in the area as a whole.

Shown in the five accompanying tables are sales by month for the 1948, 1949, 1950, and the first six months of 1951; a comparison of sales according to size of units during the first half of this year; a study of sales according to make of condensing units; a breakdown of contractors installing these units, and

a table showing where such commercial units were installed.

The tabulation by month shows that 1951 installations started out with 121 in both January and February. This figure was less than the sales recorded for the same two months in the preceding three years.

March sales zoomed to 190 units, setting a new record. In April the installations amounted to 172, just a few shy of the April, 1948 and 1950 figures, but ahead of 1949. May's 157 was down considerably from the 236 installed in May of 1950, off somewhat from the 183 in May of 1949, but well ahead of the 1948 month.

June sales were down a little from 1950 and 1949, also, but were up as compared with June of 1948.

The table which breaks down the 1951 installations by size shows the 1½-hp. size as the largest category with 222 units. In second place is the ¾-hp. unit with 175, and the ½-hp. third with 151 installations in the first six months.

Similar data published previously in the NEWS, however, showed that for 1950 the ½-hp. unit was the largest seller, followed by the ¾ and 1-hp. machines in that order.

So far in 1951 the 1-hp. size is running fourth with 135 units. Next in order came the 2 hp. with 70 installations, the 1½ hp. with 66, the 3 hp. with 55, and the 5 hp. with 19.

There were also 32 units of greater

capacity than 5 hp. installed for commercial refrigeration applications during the six months of 1951. Included here are 11 7½-hp. units five 10's, three 15's, two 20's, four 25's, one 30, two 40's, two 50's, a 75, and a 100-hp. compressor.

One detail of the table on installations by size which may be of no more than numerical interest is that unit sales of the 1-hp. size were virtually the same for each of the first six months. In January, 21 were installed, in May, 22, and in February, March, April, and June, 23 each.

Another table of interest is that comparing installations during the first six months according to make. This also gives the figures for 1949 and 1950.

Leaders Stay at Top

It will be observed here that the three leading makes in the first half of 1951 were likewise the leaders in 1950. Of the 925 units sold, make "A" accounted for 143, "B" for 135, and "C" for 78. These three leaders were also up at the top in 1949, although the figures show that make "B" was in first place, "A" in second, "H" in third, and "C" in fourth. Make "H," incidentally, still seems to be on the decline in comparison with other makes, according to these figures.

(Concluded on next page)

1951 Remote Commercial Installations by Size by Month

Month	1/2 hp.	3/4	1	1 1/2	2	3	5	5*	Over	Total
January	18	27	20	21	14	6	2	7	121	121
February	10	28	38	23	9	8	4	1	121	121
March	48	31	37	23	9	18	13	4	7	190
April	48	18	25	23	11	17	13	5	12	172
May	35	26	24	22	18	12	11	5	4	157
June	63	21	31	23	5	9	8	2	2	164
Total	222	151	175	135	66	70	55	19	32	925

*Includes 11 7½-hp. units, five 10's, three 15's, two 20's, four 25's, one 30 two 40's, two 50's, a 75, and a 100-hp. compressor.

Monthly Sales Compared

	1948	1949	1950	1951
January	138	127	198	121
February	144	163	130	121
March	130	181	175	190
April	184	159	181	172
May	131	183	236	157
June	127	196	170	164
6 Months	854	1,009	1,090	925
July	187	192	168
August	183	169	189
September	251	235	140
October	162	139	178
November	185	212	111
December	165	130	106
Total	1,987	2,086	1,982

How Contractors Shared

(First 7 Months, 1951)

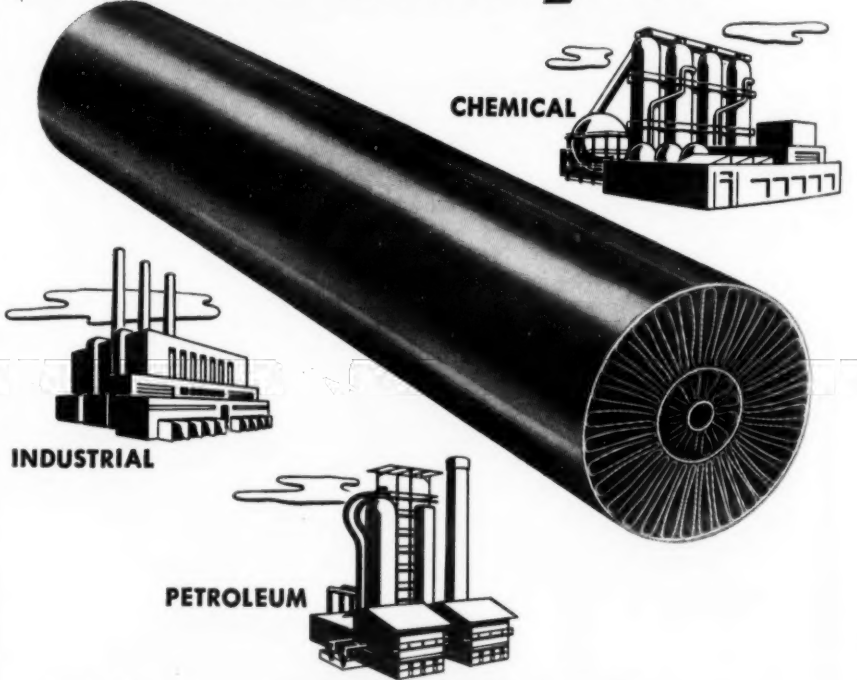
Contractor	No. Units	%
A	163	15.2
B	84	7.9
C	64	5.9
D	39	3.7
E	32	3.0
F	29	2.8
G	28	2.6
H	26	2.4
I	26	2.4
J	23	2.1
K	22	2.0
L	22	2.0
M	21	1.9
N	21	1.9
O	20	1.8
P	19	1.8
Q	17	1.6
R	16	1.5
S	16	1.5
T	15	1.4
U	15	1.4
V	14	1.3
W	14	1.3
X	14	1.3
Y	14	1.3
Z	14	1.3
AA	13	1.2
BB	13	1.2
CC	12	1.1
DD	12	1.1
EE	11	1.0
FF	11	1.0
GG	11	1.0
HH	9	.8
II	9	.8
JJ	9	.8
KK	8	.7
LL	7	.6
MM	7	.6
5 installed 6 each.	30	2.9
6 installed 5 each.	30	2.9
6 installed 4 each.	24	2.2
7 installed 3 each.	21	1.9
11 installed 2 each.	22	2.0
31 installed 1 each.	31	2.9
105	1,078	100.0

*Included in "Others."

+Denotes higher ranking than in 1950.

-Denotes lower ranking than in 1950.

Versatility...



PETROLEUM

HEAT-X LONGITUDINAL FINNED TUBING has been discovered by engineers and designers in many fields to be a more efficient type of surface for the heat transfer of most liquids and gases. Constructed with a large amount of surface compressed into the smallest possible volume, Heat-X Longitudinal Finned Tubing provides for maximum space saving, minimum pressure drop. Available in sizes from 5/8" O.D. to 2 1/8" O.D. and lengths up to 10 feet.

Write today for complete specifications

THE HEAT-X-CHANGER CO., INC.
BREWSTER, NEW YORK

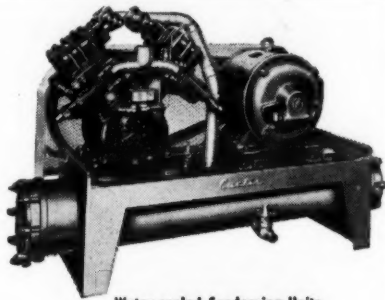
Curtis

DISTRIBUTORS

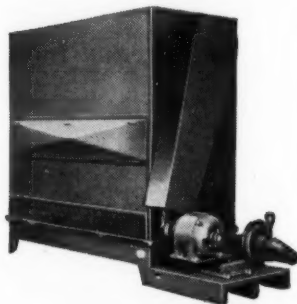
ARE MAKING MANY INSTALLATIONS
IMPORTANT TO DEFENSE

in

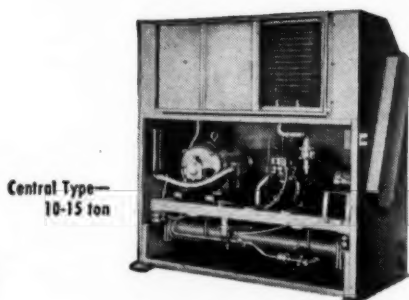
- Army, Navy, Air Force Projects,
- Industrial Processing,
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- Commissaries,
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Water-cooled Condensing Units—through 40 tons



Evaporative Condensers, Cooling Towers and Air Handling Units to match



Central Type—10-15 ton



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The broad CURTIS line of Air Conditioning, Temperature and Humidity Control equipment enables CURTIS distributors to quote and get many of these installations.

With Condensing Units through 40 HP . . . Evaporative Condensers . . . Cooling Towers and Air Handling Units to match, CURTIS distributors can handle more jobs, make greater profits.

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97 Years of
Successful Manufacturing
Experience is
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Curtis Equipment



Curtis Refrigerating Machine Division
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I am interested in Curtis Franchise. Send complete details.

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Where Remote Commercial Machines Were Installed In Detroit In 1950 and First Half of 1951

Establishments	1950		1951 (First 6 Mos.)	
	No.	Units	No.	Units
Advertising agency	1	1	1	1
Amusement park	1	1	1	1
Apartment house	10	11	4	6
Bakery and bakery shop	29	29	7	7
Banana storage	2	2	1	1
Bank	1	1	2	10
Beer store	14	19	9	10
Beet dock	2	3	1	1
Bowling alley	3	3	3	5
Brewery	1	1	1	1
Cafeteria	1	1	4	8
Candy manufacturing	3	3	1	1
Caterer	1	1	1	1
Club	16	29	2	3
College	1	2	1	1
Confectionery	16	26	5	6
Convalescent home	2	4	1	1
Dairy	14	20	5	7
Dairy bar	21	39	10	23
Dairy store	5	5	1	1
Dance hall	1	2	1	1
Delicatessen	3	9	1	1
Department store	6	10	6	17
Drug manufacturing	5	6	3	3
Drugstore	15	22	6	7
Drug wholesaler	2	2	1	1
Egg storage	3	3	3	5
Factory	8	9	5	8
Fish market	2	2	4	4
Fish wholesaler	1	1	1	1
Florist	23	25	11	11
Food processing	3	5	1	1
Food store	613	997	236	375
Food wholesaler	18	20	6	7
Frog market	1	1	1	1
Garage	1	1	1	1
Golf club	1	1	2	7
Greenhouse	1	1	1	1
Hall	8	10	4	13
Hospital	6	98	49	174
Hotel	4	6	2	3
Ice plant	1	1	1	1
Ice rink	1	2	1	1
Ice vendor	7	7	2	3
Institution	1	1	1	1
Jail	1	1	1	2
Laboratory	1	1	2	2
Meat packer	7	13	4	7
Monastery	1	1	1	1
Night club	5	5	1	1
Office	1	2	1	1
Poultry market	5	6	3	3
Railroad depot	1	2	1	1
Residence	1	1	1	1
Restaurant	149	189	71	94
Sanitarium	1	1	1	1
Sausage manufacturing	2	4	2	4
School	3	5	1	1
Seminary	1	1	1	1
Stadium	4	4	1	2
Storage	4	4	1	2
Store (unspecified)	3	4	1	1
Tobacco curing	1	2	1	1
Tavern	173	212	51	57
Telephone exchange	3	3	1	1
Theater	18	18	14	14
Trucks, refrigerated	15	15	1	1
Utility office	1	1	1	1
Unknown	1	1	1	1
Veterans Memorial	1	25	1	1
Warehouse, cold storage	4	5	5	6
Winery	1	1	1	1
Yeast warehouse	1	1	1	1
YMCA	3	9	1	1
YWCA	1	8	1	1
Total	1,285	1,982	555	925

Information on Buyers Revealed--

(Concluded from preceding page)

Of all the makes accounted for in this tabulation, five are maintaining the same relative positions this year as they did in 1950. There are seven, however, who are in a better relative position while 13 have lost ground.

Among those who have gained are "E," which already in six months has sold more than in all of 1950—62 compared with 17 units. "G" is up likewise, 53 in six months compared with 43 in 12 months; "O," 15 as against 4 in the same periods.

The fourth table giving details of the commercial refrigeration installations made in Detroit shows a breakdown according to the number of units installed by each contractor. These figures cover the first seven months of 1951—January through July.

Leading Contractor Has Twice Installations Of Next In Rank

It can be seen in this table that one firm, designated as contractor "A," garnered the lion's share of the jobs, 15.2% of them to be exact. The balance of the 1,078 units were divided up among 104 other contractors. The top contractor with 163 units was well ahead of "B" with 84 units (7.9%) and "C" with 64 units (5.9%).

The combined total of the first 11 contractors, who represent approximately 10% of those who made installations in first six months, chalked up 50% of the total business, the table also shows. This is consistent

with previous tabulations made by the NEWS on both commercial refrigeration and air conditioning installations in Detroit as well as Chicago.

As usual, there are a considerable number of contractors who install but a few units apiece. For example, 31 such contractors (or about 30%) installed only one each. There were 11 who installed two each and seven who put in three each.

Food Stores Lead

In the fifth table is shown where the 925 commercial condensing units were installed in Detroit in the first half of 1951 along with a comparison with the 1950 installations. As usual, installations in food stores accounted for the largest percentage in any one category, 375 units having been installed in 236 food stores in the first six months of 1951.

Second largest purchaser so far this year was the restaurant owner. A total of 71 restaurants had 94 units installed. Third were taverns, 51 installing 57 units.

In number of purchasers, hospitals rank fourth with 49 and sales of 174 units. The figures on hospitals may be misleading, however. Early this year routine inspection of hospitals by the Safety Engineering Bureau revealed that these institutions over a period of several months had installed numerous oxygen tents equipped with refrigeration equipment. In apparent ignorance of city code requirements, no permits had been taken out for these units. Thus, when discovered, all permits required were taken out within a short time.

7,000 See Nashville's All-Electric Home

NASHVILLE, Tenn.—A "light conditioned" all-electric residence, labelled the "1952 Miracle Home" drew 7,142 visitors in eight days during September, the Nashville Electric Service reported recently.

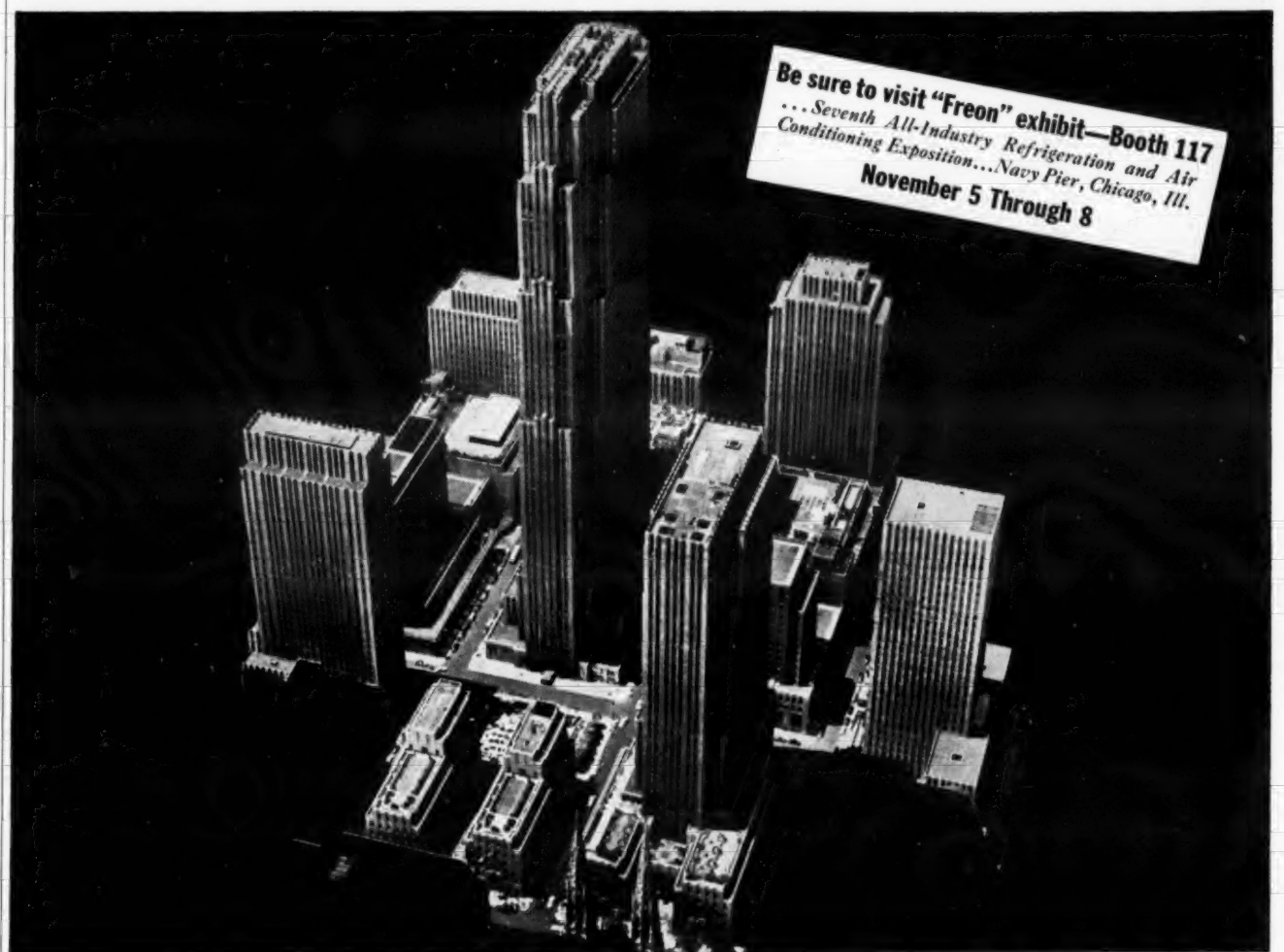
Though emphasis was placed on the "correct electric lighting," the home also featured a completely electric kitchen and laundry. Contributed by a local appliance wholesaler were an automatic dishwasher, garbage disposer, electric range, home freezer, refrigerator, exhaust fan, clock, automatic washer, automatic drier, ironer, and water heater. Local appliance dealers were invited to tie-in with the event.

The five-room ranch-type structure was also equipped with radiant electric ceiling heat, attic ventilating fan, and automatic garage door.

The Miracle Home event was promoted in newspapers and on the radio by the suppliers who furnished materials for the house as well as its principal sponsors and interested dealers.

The turnout was considered gratifying in view of the fact that many hundreds of new homes in this area have been thrown open to the public by builders, according to R. F. Linsert, advertising manager for the utility, which was one of the Miracle Home sponsors.

The Nashville Home Builders Association now hopes to have an annual "open house" event like this. Plans for complete air conditioning of next year's home are now in the making, Linsert said.



World-Famed "City Within a City"

...Air conditioned with "Freon"-operated equipment

Rockefeller Center in the heart of New York's Manhattan is the largest privately owned business and entertainment center in the world. Begun in 1931, it now consists of 15 huge buildings, occupying more than 12½ acres. The RCA building, dominating structure in "Radio City," towers 70 floors . . . 850 feet above street level.

Throughout this fabulous Center more than 2,000,000 sq. ft. of floor area is completely air conditioned with equipment using "Freon" safe refrigerants—and these machines dependably produce over 8,000 tons of refrigeration!

Because "Freon" refrigerants are recognized by architects and engineers everywhere as the most suitable for serving the public, it was a logical decision to install air conditioning equipment that is "Freon"-operated. These refrigerants are nonflammable, nonexplosive, practically nontoxic . . . harmless to foods, furs, fabrics or finishes.

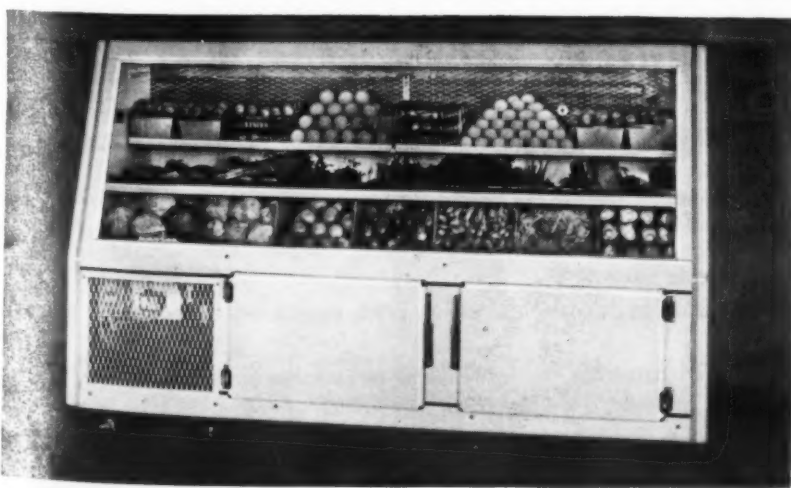
"Freon" refrigerants meet all safety requirements of city codes everywhere. In addition, the uniformity of these refrigerants insures the efficient and economical performance of air conditioning systems over long periods of time . . . good reason why most equipment selected for today's modern structures is designed to use these superior refrigerants. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.



A small part of the equipment installations necessary to air condition buildings in Rockefeller Center.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



WARREN'S NEW SLIDING-DOOR DEW-MAKER PRODUCE CASE

is a sensational profit maker. This Model CVDS, 60" high, adds 20% extra capacity at no extra cost. During heavy customer traffic the glass doors can be easily removed. The 12" mezzanine shelf can be adapted for many products also. Complete details from THE WARREN COMPANY, incorporated, P. O. Box 1436, Atlanta 1, Georgia.

SEE THE WARREN EXHIBIT AT SPACE 336, ALL-INDUSTRY

For Whipped Cream Specialties

Texas Baker Calls His Refrigerated Case
'Most Profitable Investment I Ever Made'

WACO, Tex.—A 6-ft. Tyler display refrigerator, set midway along the cases at the right side of his bakery, has proven the "most profitable investment I ever made," according to Earl J. Casey, owner of Casey's Bakery, outstanding neighborhood bake shop here.

Casey, a veteran of 15 years as a retail baker, plus four as a military baker, bought his refrigerated case after pondering over the purchase for a considerable length of time before deciding that the many calls for meringue-topped or whipped cream topped goods warranted it.

SHOPPERS STOPPED IN TRACKS

Once having made up his mind, the Texas baker ordered one of the largest and most impressive 4-shelf cases available. With double panes of glass to prevent condensation, and a brilliant "cold cathode" lamp above, the case calls attention from outside the store through the all-glass front. And, during the 100-plus summer weather, which exists from June 1 until mid-October, many shoppers are "stopped in their tracks" to find these perishable baked goods readily available.

Carefully keeping books on his purchase in order to determine the wisdom of such purchases, Casey came up with a pleasant surprise.

"Our figures show, based on the monthly instalment payment on the refrigerated case, that I need merely sell only \$6.50 per day of these de-

lux baked goods in order to make the payment on the refrigerator, and to pay all costs of the ingredients which went into the products shown, plus the labor.

CASE PAID FOR ITSELF
SWIFTLY

"Actually, however, we average sales of around \$20 a day from this case, all business which we would not obtain otherwise, and therefore, at least \$13.50 per day is earned by the case to be applied to payroll, store-operating cost, and of course, to ultimate profit. The refrigerated case has actually paid for itself more swiftly than any other piece of equipment in the bakery, and sales from it have climbed continuously month after month, particularly during the hot weather period.

"I would say that almost any baker who has the space in the showroom and the facilities for producing an ample stock of whipped cream specialties should install refrigerated facilities as soon as possible."

Going farther, highly pleased with what refrigeration has accomplished for him, Casey has likewise installed two 3-door Tyler reach-in boxes, in sorely-needed space at the right side of the bake shop. Containing more than 200 cu. ft. of storage space, however, the two refrigerators make it possible for him to cut his "stales" down to a negligible factor.

"We operate in a highly arid climate," Casey said, "and if rolls, cookies, stollens, or even bread is displayed in ordinary non-air conditioned cases, it dries out rapidly. Thus, we must either risk irritating a treasured customer, or declare as salvage a high percentage of our unsold products. Now, however, with the 200 cu. ft. of refrigerated space which these two refrigerators permit, I show only a minimum stock of all baked goods in the cases, and maintain the forward stock under refrigeration."

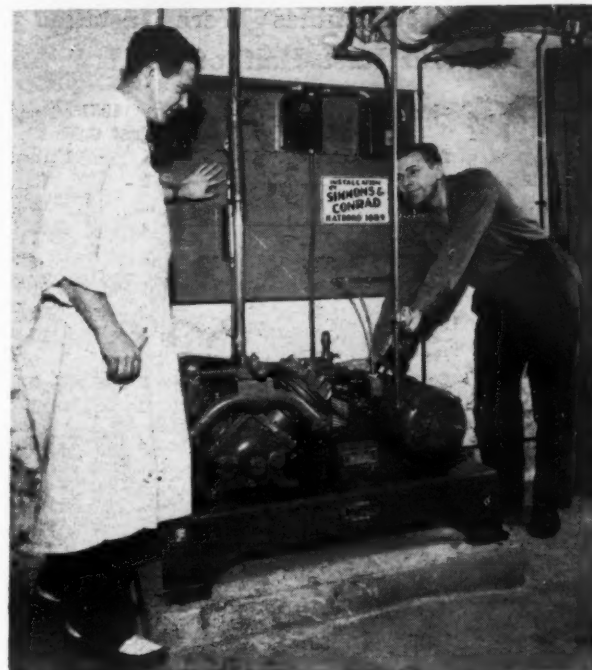
EXTRA EFFORT PAYS OFF

"It requires a bit more effort on the part of our sales people to constantly restock the cases from the refrigerators but we have found that the excellent condition in which all baked goods remain, makes this more than worth while. Our sales for the hottest week in August, when the temperature hit above 106 every day, were less than \$3, which is, in this community, an all-time low. Both of the refrigerators will pay for themselves in minimum time, merely on elimination of stales alone."

Krich-New Jersey Names
F.M. Comins To Head Sales

NEWARK, N. J.—Frederic M. Comins has been appointed vice president in charge of sales for Krich-New Jersey, Inc., distributor here.

Comins was formerly vice president in charge of sales for Associated Distributors-New Jersey, Inc., New Jersey distributor of Norge home appliances, Mitchell room air conditioners and James automatic dishwashers.



LEFT: Operation of condensing unit for locker room is explained by Dawson Parkhouse to Philip Conrad (right), the contractor.



RIGHT: 40 lockers in pre-fabricated walk-in give grocer profitable extra service to offer his customers.

For reliable motor service

for Air Conditioning and Refrigeration

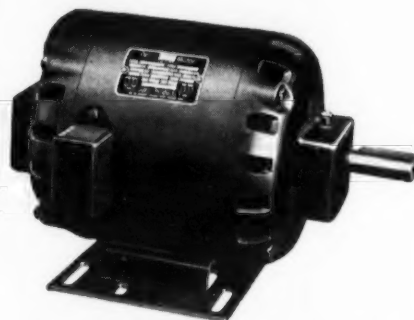
DEPEND ON
DELCO

It is an axiom in the industry that *Delco always delivers*, and this applies to the faithfulness with which Delco meets its production commitments quite as much as it does to the efficiency of the motors themselves. A nationwide organization, supplying service and replacements in the field, further strengthens the value of any Delco-operated equipment.

DELCO MOTORS

DELCO PRODUCTS

Division of General Motors Corporation
Dayton, Ohio



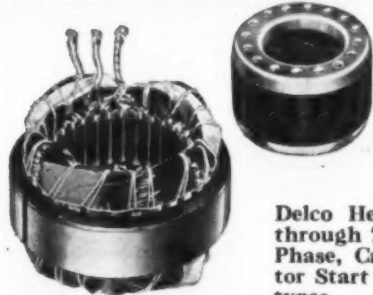
Delco Single Phase, Repulsion Start-Induction, Fractional Horsepower Motors available in 1/2 h.p. and 3/4 h.p. sizes.



Delco Single Phase, Repulsion Start-Induction, Integral Horsepower Motors available in 1 h.p. through 5 h.p. Also Polyphase Integral Horsepower Motors available in 1 h.p. through 75 h.p. 1800 r.p.m. sizes.



Delco Single Phase, Fractional Horsepower Motors, Split Phase type available in 1/8 h.p. through 1/3 h.p. for blowers and fans. Capacitor Start type available in 1/8 h.p. through 3/4 h.p. sizes for compressors, pumps and blowers.



Delco Hermetic Motors, 1/12 h.p. through 7 1/2 h.p. available in Split Phase, Capacitor-Start or Capacitor-Start and Run, and Polyphase types.

Cashing In on Delivery

Grocery Installs Lockers and Gives
Customers Phone Order Service

ABINGTON, Pa.—To cash in further on its already popular and profitable phone order delivery service on groceries and meats, Parkhouse & Sons recently had a pre-fabricated walk-in cooler containing 40 lockers installed in its store located here.

The installation was handled by Philip Conrad who heads Simmons & Conrad, refrigeration contracting firm in nearby Hatboro.

Catering to the better class of trade in this suburb of Philadelphia, the store does a thriving business on phone orders, although it also offers the usual facilities for the walk-in trade. A total of 12 phones are required to handle the orders for all types of groceries and foods which are called in by customers.

Entire basement of the store is devoted to stocks and facilities for these orders, which are made up and carried upstairs by conveyors to delivery trucks.

The prefabricated walk-in which was installed upstairs in the store measures 9 by 12 by 8 ft. high and houses 40 6-cu. ft. Master lockers.

Lowside for the cooling system consists of a Larkin automatic hot gas defrost system. This is connected to a 3-hp. Brunner water-cooled condensing unit.

Dawson Parkhouse, who operates

the store, established a rental of \$24 a year per locker. This is rather a stiff charge compared to the conventional locker plant, but despite this, all the lockers were rented before the installation was completed, according to Conrad, who was the contractor.

And while some of the lockers are rented by customers who habitually visit the store to do their shopping, the majority were taken up by those who telephone their orders.

In addition to the income from the rentals, the store makes a good profit on sales of frozen meat and other frozen foods to patrons who have Parkhouse place it directly in their own lockers.

Then, when such customers phone in their regular grocery orders they can also ask that certain frozen items be taken out of their locker and delivered to them at the same time. This group of customers seldom visits their lockers personally, Parkhouse explains.

JUST ASK US

For "easy-to-get" product information... use coupon on "What's New" page.

Use Key No. for fastest service.

GO SOUTH, YOUNG MAN, GO SOUTH

AMERICA'S FASTEST GROWING MAJOR CITY

The Owner of one of the South's fastest growing Commercial Refrigeration and Air Conditioning Businesses, located in America's Fastest Growing Major City—in TEXAS, will consider the Sale of same to responsible party/s.

Distributor Franchises for many most sought after Nationally known lines.

Lease on 12000 sq. ft. warehouse on trackage, display rooms, shop, garage, storage facilities—fully equipped. Large Parking space.

Business completely staffed with experienced Sales Force, Installation and Service crew, and accounting personnel.

Sales over \$500,000 yearly, Inventory clean. For Sale as a going concern.

Hundreds of Local Installations. Excellent Government Contracts and Customer Goodwill, making expansion unlimited. Owner has other interests.

Submit full details to Box 3845, Air Conditioning & Refrigeration News or can contact Owner at Chicago, week of All-Industry Show, Nov. 5 thru 9. Phone, Central 6-0438.

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

Catholics Are Loyal

Southern Methodist tackled Notre Dame in 1949, and darned near licked 'em.

An odd spectator at that violent spectacle confused people by cheering enthusiastically for both teams.

This bi-partisanship annoyed a woman seated nearby, and overpowered her pre-game resolution to be a Lady no matter how wrought up she got.

"Look, fella," she probed tartly, "what gives with you?"

"Whee," he yelled, "who cares who wins? Me? I just like football."

"Hmpff," sneered the woman, "so you're an atheist, huh?"

Preachers and priests are sports promoters in many communities, and with good reason. When boys and their fathers (yes, and their mothers) are organized into sports leagues of one kind or another, they don't sin so much.

Some preachers even go in for card games.

One such bade a tearful farewell to old cronies and young proteges before leaving for an assignment in "the sticks." This preacher had heard a "call" to a new pastorate, so he said. Incidentally, the new assignment offered a \$200-a-year pay increase.

"Good bless you and Godspeed," farewelled a deacon. "You weren't 'called,' though. You were 'raised.'"

Behind the Iron Curtain the most important game is Chess. It's a devastatingly slow game, as every Occidental knows.

Longtime nobody sees any action. Longtime no see no nothing. That's Chess.

This game apparently fits the Russian mentality. Few North, South, or Central Americans are intrigued by it, however.

Jose Capablanca of Havana, Cuba, is one of the few. He's a former international champion, and the present recording secretary of the International Chess League.

As such, he reads the Months of the Last Meeting to the annual Chess League conclaves.

Protect Your Capital

The Detroit Lions professional football club was in a sad state of disrepair when Chicago's Freddie Mandel (scion of the department store family) sold his franchise to a syndicate of Detroit capitalists. Freddie had tried hard, and lost an awful lot of money in the process, but somehow he couldn't give the Detroit fans a winning team.

When the Detroit syndicate took

over, they hired one of America's most famous football coaches, "Bo" McMillan. Intense "Bo" was known throughout the land as an inspirer—a "showboat" leader who could boot-and-spur ordinary players into playing better.

Well, "Bo" arrived on the scene, charmed and mesmerized one and all . . . and then proceeded to lose the first three games on the road.

Came the Saturday night when the McMillan-coached Lions opened the home season against the lowly Boston Yanks—who'd also lost their first three games. All the experts had predicted that Detroit should win. Bad luck dogged McMillan's boys in this game also. Time after time they knocked on the TD door, but couldn't enter. Late in the last quarter when the Lions were trailing 17-14 (the final score) a Detroit end dropped a perfect forward pass in the end zone.

At that moment a prankish kid exploded a Fourth-of-July "cannon cracker."

Up jumped one of the new Lions' stockholders and cried out:

"Migawd! McMillan just shot himself! Was he insured?"

Rugged Life

It seems like "Bo" McMillan has always worked with scanty material, no matter where he has played or coached.

As the inspired quarterback of the tiny Center College (Ky.) football team which trimmed Harvard in an historic upset, as the director of Indiana university's perennial "po' little boys," and as the coach of the professional Lions and Eagles, "Bo" and his teams nearly always have been undermanned and out-gunned (but seldom out-generated) by most of the opponents on his schedules.

At Center college, at Indiana U., with the Lions and Eagles, "Bo" has been realistic about his ever-recurring problem: lack of depth in reserves. He has sought to counteract this handicap by working his squads so hard in pre-season training that their rugged physical condition will help them win at least the first two or three games against more-powerful opponents. "Bo" is notorious for his rough, over-lengthy "conditioning" programs.

The above factual essay leads up to an anecdote about a former All-Big-Nine tackle released before the opening of the National Professional Football League season. This tackle wanted to play football—and for pay—so after he had been dropped from the Detroit Lions squad he presented himself to owner-coach George Halas at the Chicago Bears training camp.

Halas welcomed him in his usual insouciant manner.

"You played for———" Halas encouraged.

"Minnesota. I was an All-Big-Nine tackle."

"And you were drafted by———" "Detroit. McMillan cut me loose day before yesterday."

Halas walked around his large office table, shook the applicant's hand gingerly, and said:

"Want to lie down for awhile, fella? You must be tired!"

Gag of the Week

Most trees must be feminine. They do a strip-tease in the autumn months, display bare limbs in winter, dress up enchantingly every spring, and live off the sap all summer.

Nonsense of the Week

With a perfectly straight face the U. S. Department of Labor announced in a press release:

"As employment increases in industry, unemployment is expected to decrease."

No comment.

Quotes of the Week

Michelangelo was working on a statue when some friends visited him one afternoon. A month later they returned and found him still working on the same statue.

"Why, what have you done since our last visit?" one asked.

"Oh, I've smoothed a line here, and polished an arm, taken a few flakes of marble from the forearm, etc.," replied the great artist.

"But those are only trifles! Is that all you've done?"

"True, they are but trifles," Michelangelo gravely responded. "But trifles make perfection, and perfec-

tion is no trifle."—Opportunity.

"George Washington seldom indulged in jokes, but when he did, he always made a hit. In Congress, during debate on the Army, a member offered a resolution limiting the force to 3,000 men. Washington suggested an amendment providing that no enemy should ever invade the U. S. with more than 2,000 soldiers. Laughter completely smothered the resolution."—Judy's.

"We have developed in this country what amounts to a mild phobia against negative action. When a wild, theoretical program is suggested, instead of turning it down flat, our conservatives put forward an alternative that is little if any better. The justification for this course is that 'we must always offer something constructive.' Why?"

"Consider the Ten Commandments. Nine of them are negative. 'Thou shalt not' saith the Lord, thy God. What we badly need are more men with the courage to sound a loud resounding NO!"—RALPH BRADFORD, vice president, U. S. Chamber of Commerce.

Dirty Trick

By chance we ran into a prominent man in our industry in Washington recently. He told us about a lowdown trick his wife had played on their 25-year-old son.

The latter, it seems, was engaged to a girl of whom Mother didn't approve. Dad didn't think too much of her either, incidentally. Knowing that open objections would make matters worse, Mother resorted to strategy.

On a fine Saturday morning she

handed her son a 10-dollar bill at breakfast.

"Would you mind doing the grocery shopping today for me, dear?" she entreated. "Here's the list of things we'll need. I'm so busy I just can't get away."

Two hours later Sonny came back with the groceries and a grump.

"You owe me \$7.68," he accused. "Had to use my own money to buy all that stuff. Prices sure are high."

The lesson sank home, apparently, and Sonny quietly broke off the engagement.

Voice of Experience

Speaker-of-the-evening at the North Side Parent-Teachers Association meeting was Dr. Henry Nitecall, a pediatrician. He concluded his address on "Symptoms of Childhood Ailments: How to Identify Them," and awaited questions from the floor.

Up popped Mrs. Bizzbodee.

"Doctor," she clarified, "what is the most common trouble children have?"

"Mothers," he answered promptly. There were no further questions.

Sad Sack

Into the Mississippi doctor's office was wheeled an emergency case helter-skelter. The patient was badly cut.

"Rufus," exclaimed the medico, "you here again—all slashed up! Why don't you keep away from bad company?"

"Doctah," croaked Rufus, "ah done tried to. But ah jes' caln't get the necess'ry cash fo' a divo'ce!"

Comfort from the Bible

"Say to them that are of a fearful heart, Be strong, fear not; behold, your God will come with vengeance, even God, with a recompense; He will come and save you."—Isaiah 35:4.

(From the Farewell State, some hope. Others will put their trust in the Lord, but keep their powder dry).

Add Sales Stories

A train en route to a convention was loaded with salesmen. One was Jock, a Scotchman.

Sam the porter was passing out pillows, getting card tables, etc., and receiving several tips. He asked Jock would he like a pillow. Jock said yes. Jock then said, "Sam, I have no change at the moment, so I'll take care of you when we arrive at Detroit."

At Detroit Jock was the last man off the car. There stood Sam all attention. Jock dug into his pocket and produced three pennies. He handed them to the porter, saying, "I hope you don't mind pennies."

"Oh, no, suh," said the porter. "I like getting pennies for I use them to tell fortunes."

"Is that so?" queried the Scotchman. "Can you tell mine with those pennies?"

"That I can, suh. This first tells me you are a Scotchman."

"That's right," rejoined Jock, "and what about the second one?"

"That one tells me you are a salesman."

"Yes, yes," said Jock, "and the third?"

"That one, suh, tells me your father was a bachelor."

HENRY

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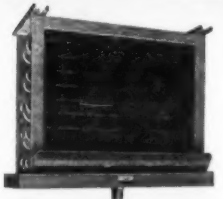
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Whenever you think of forced air coolers—regardless of type—think first of PEERLESS! We manufacture coolers for an almost endless variety of uses: Unit, Dome, Panel, Corner Unit, and Pie Plate (round coil) types. Each Peerless Cooler combines functional design, proved quality and lifetime superiority of performance. Low operating cost, simplicity of installation and ease of servicing characterize the complete line of PEERLESS Coolers. Write today for complete information.

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LEFT: Unit was installed in the conditioned space and connected to a long duct.



BELOW: Patrons of this popular beauty salon in Brooklyn are made comfortable by a 10-ton package conditioner which is connected to ductwork.

Air Cooled Beauty

Limited Space, Heavy Load Pose Problem... 10-Ton Packaged Unit with Ductwork Is Solution

BROOKLYN—What the contractor believes is a somewhat unusual solution to the twin problem of limited space plus a heavy load, features the air conditioning installation for the new and popular beauty salon recently opened on Flatbush Ave. here by Morrin & Murry.

In the relatively small over-all area of 20 by 90 ft., this firm of hair stylists employs 17 beauty operators, which indicates the volume of its trade. It also has 17 electric hair driers, which produce an extremely heavy load.

"If this were a shoe store, say, the place could be air conditioned quite satisfactorily with a 3-ton package unit, but this type of occupancy figured out to a load of 10 tons," explains John Santoro, head of Santoro Bros., Brooklyn contractor which put in the system.

"This was more," he adds, "than others bidding for the air conditioning job suggested, but we figured that a system of 10-ton capacity was required to do the job right."

Due to the fact, however, that the operation of the beauty shop took up the full length and width of the 20 by 90-ft. store, this presented the problem of finding space for the cooling equipment.

What Santoro did was to install a 10-ton Brunner packaged conditioner beside one wall near the back end of the beauty shop and connect it to ductwork running along the same wall near the ceiling. No attempt

was made to conceal or camouflage the conditioner, which is in full view of the patrons.

"I've never seen this done before with a packaged unit this large," Santoro says. "Yes, it's often done with 3's, 5's, and even 7½'s, but with a 10-ton machine or larger, the conditioner is almost always installed out of the conditioned area."

In this instance, too, it was fortunate that the standard blue-gray metallic finish of the conditioner casing is virtually a perfect match of the predominant color in the shop's decorative scheme.

"This was just luck," Santoro admits.

There's a canvas connection between the conditioner and the duct directly above it. Seven outlets have been provided in the duct to provide an even distribution of air throughout the entire area, including the front entrance-way and small waiting room.

No return air duct system is required because the unit, of course, is right in the conditioned space. Normally the system is set up to supply 25% fresh air which is pulled in from the roof. Control of the unit is by a thermostat in the return air stream.

Also on the roof is a 10-ton Marley water tower handling condenser water. Pump which circulates water from conditioner to water tower is located on the floor of a small balcony at the rear which almost overhangs the unit.

Efficient use of the air conditioning system will be made on a year-round basis by means of steam heating coils installed in the conditioner.

To indicate how extremely modern is the interior design into which the conditioner blends so nicely (and perhaps also the pitfalls of Early Atomic Era architecture), the management found it had to paste a penciled sign reading "door" on the inside.

Getting into the place was simple, but too many people have been trying (innocently) to leave through the front window instead of the door beside it.

Ceiling Prices Announced On Fresh'nd-Aire Products

CHICAGO — Ceiling prices on Fresh'nd-Aire products were announced recently by the Fresh'nd-Aire Co., division of Cory Corp. here.

The prices are set in accordance with Section 43 of Ceiling Price Regulation 7 and are approved by the Office of Price Stabilization.

They are as follows:

Catalog No.	Brand Name	Where Applicable	Approved Retail Price Federal Tax Included (%)
80	Fresh'nd-Aire Fanette 8-in. Std.		\$12.50
100	Fresh'nd-Aire Fanette 10-in. Std.		18.00
80DX	Fresh'nd-Aire Fanette 8-in. Deluxe		13.95
100DX	Fresh'nd-Aire Fanette 10-in. Deluxe		19.00
W800	Fresh'nd-Aire 3-way Window Fan 8 in.		18.00
W1000	Fresh'nd-Aire 3-way Window Fan 10 in.		24.50
90	Fresh'nd-Aire "Console" Circulator 9 in.		29.95
120	Fresh'nd-Aire "Console" Circulator 12 in.		37.45
F 12	Fresh'nd-Aire Floor Circulator		49.95
1320	Fresh'nd-Aire Heaterette		16.95
700	Fresh'nd-Aire Electric Room Humidifier		39.95
300	Fresh'nd-Aire Wall-Aire		39.95

Toledo Merchandise Co. Leases New Warehouse

TOLEDO — An additional warehouse, located at 26-28 S. Superior St. and formerly occupied by The Lake Shore Motor Freight, has been leased by The Toledo Merchandise Co.

The new facility was needed to handle the company's ever-growing stock of air conditioning and commercial refrigeration equipment, television and radio receivers, electrical appliances, home freezers, frozen food containers, and paper products.

The company, now in its 51st year, is said to be one of the largest distributors in this area. Don C. Rolli is president; Everett E. Taylor, vice president; Clayton Damschroder, secretary; Ed. A. Greunke, treasurer; and B. D. Bradford, sales manager.

Sales rooms and offices of the company remain at the present location, 31-35 S. Superior St.

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IMPORTANT REMINDER

to Air Conditioning and Refrigeration
General Contractors

This is addressed to those General Contractors who are faced with today's complex problems of complying with equipment specifications, getting the equipment and also needing technical data and engineering help based upon up-to-the minute experience with the unusual as well as the usual job.

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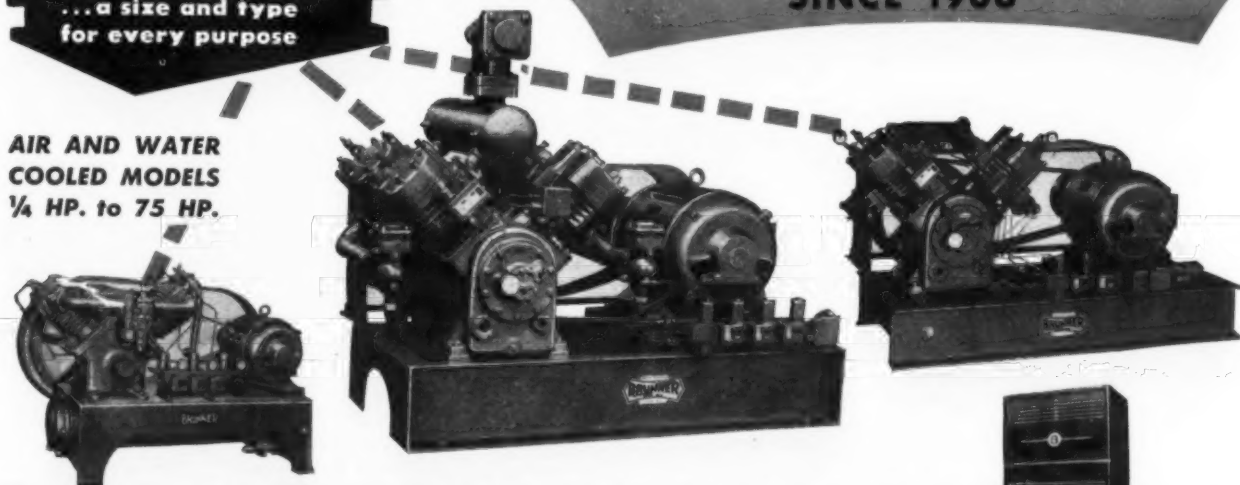
BRUNNER offers YOU not only a complete range of dependable equipment but a well known, highly respected organization working hand in glove for you toward the satisfying and profitable fulfillment of your contracts.

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Write or phone us for a factory representative who can talk your language, from preparing bids to making the installation. No obligation.

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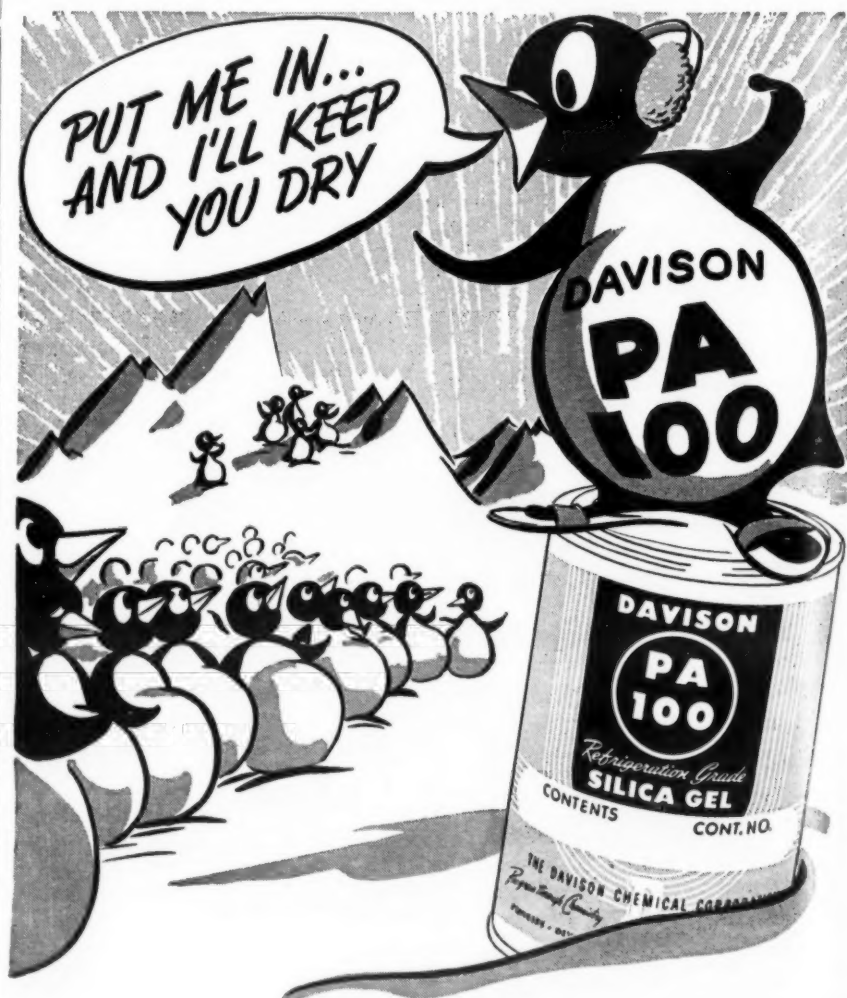
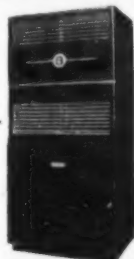
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PLANNING and engineering department of Lee Shell Co. shows, for example, 16 different floor treatments so prospects can readily make comparisons. Here Frank Whalen (left), head of the department, checks a job with I. W. Shell. Sales engineers at the drawing boards are Sigmund Selwell, Joseph Libster, and R. C. Koehler.

Sell the Store, Not the Equipment

Color Slides of Installations, Designs In Color Sell Complete Jobs for Lee Shell Co.

CHICAGO—"The trend is definitely to color today in designing markets," declares I. W. Shell, who heads the Lee Shell Co., Hill distributor here.

And to make the most of that trend, the firm is equipping itself with color cameras and viewing screens so full-color slides can be taken of outstanding installations and then shown to prospects.

"Some people are interested in three-dimensional stereopticon color slides but we don't think that's the best sales approach," Shell also comments.

"To use them you have to have a special viewer which is held by the prospect up close to his eyes. When the prospect is looking at such slides it means that the salesman doesn't have control of the conversation. He's at the mercy of the prospect."

Shell prefers the Eastman table viewer which can be set up on a desk and plugged into the nearest wall outlet very simply. The salesman operates the viewer and can control the slides being shown as well as the conversation.

A special carrying case conveniently holds the viewer and slides, giving the firm's salesmen a convenient means of taking a new store or product, as it were, to a busy prospect instead of trying to make arrangements for the prospect to go to the store.

In its work on color, the firm depends to a considerable extent on Frank Whalen, who heads the engineering and planning department. Some of his color schemes for food markets and restaurants are so good

they sometimes "boomerang," according to Shell.

"After seeing their new store, the owner or his wife will frequently insist that Whalen redecorate their home, too," he says.

In laying out complete store or restaurant jobs, the plans themselves are often prepared in color. The extent to which this is done varies with the size of the job.

Some are rather simply prepared plan and elevation views with a touch of color here and there to help prospects visualize the store layout and the color scheme. They're very effective, too.

"For really important big jobs that we're trying to land, we go to the expense of having Whalen prepare full perspective drawings in color," Shell explains.

Using soft colored chalk, the head of the engineering department turns out perspective drawings that have the fine quality of expensive airbrush work. Their preparation, however, may require as much as two full days, but on big jobs that time is well invested. Such drawings often are the difference between getting and losing the order, according to Shell.

And to follow up on this important matter of color once the job is sold, the firm selects color cards obtained from paint companies to show the painters exactly what is wanted.

"Customers and prospects are very much impressed by the amount of detail that goes into our planning work, especially as represented by these drawings," he adds.

They can see examples of these drawings hung on the walls of the firm's engineering and planning department which was laid out, incidentally, to give prospects an idea of how various interior finishing materials look when actually installed.

On the floor of the planning department, for example, are 16 different combinations of floor coverings showing various tile patterns in linoleum and other materials. Around one section of the wall are various samples of wood with different finishes, while supporting columns in the room show various wall and canopy treatments. Modern ceiling treatment also features the planning department.

The whole point of these drawings in color, Kodachrome slides and viewers, and the setup in the planning and engineering department is aimed at complete store modernization jobs, points out Shell.

"We don't talk equipment to prospects," he says in fact. "We tell them:

"We have the best. What do you know about insulation, for example. How do you know whether 3 in. of one insulation is better than 2 in. of another insulation? What do you know about compressors, expansion valves, coils? Nothing!"

"Therefore, the least you can afford is the best. We have it. You must have confidence in us. Forget about the equipment. Let's talk about the store."

And from that point, prospects hear about merchandising and store-planning methods instead of details about equipment. Business cards carried by Lee Shell salesmen indicate they're from the "planning department," in fact.

Vive le Poisson et Pomme de Terre!

France Is Ready To Use Commercial Refrigeration for Food Preservation

CHICAGO—France is "definitely ready" to use commercial refrigeration equipment for the preservation of perishable foods in food stores, according to a report from Paris by George R. Lindahl, Jr.

Lindahl, who is now attached to the Economic Cooperation Administration on a special ECA mission to France, is on leave of absence from The Warren Co. Earlier this year, he was appointed, along with Albert Rebel, to head Warren's new western divisional office. Before that, he was vice president in charge of sales for The Super-Cold Corp.

Lindahl was assigned to the French mission with the diplomatic title of assistant economic commissioner. He functions as liaison between the chief of productivity, John Carmody, and the industry section.

Purpose of the mission is to encourage French industry to increase its productivity by acquainting plant operators with the latest American techniques, short cuts, incentive plans, and the like.

In a letter to Paul H. Sullivan, executive secretary of the Commercial Refrigerator Manufacturers Association, Lindahl said he finds a general trend toward self-service in food stores, and a great desire to learn more about American methods of food merchandising.

Sullivan quoted Lindahl as reporting that "the self-service idea, how-

ever, does not extend generally to perishable foods, but only to staple groceries which are vended in much the same way as in our supermarkets.

"He (Lindahl) feels that France is definitely ready for commercial refrigeration to fill up this gap in food distribution and in caring for perishable foods.

"There is also a great market in the French colonies, and this is not being overlooked by some of the household people. General Motors is now in the process of building a plant there to turn out domestic refrigerators on a large basis. Another active operation is Carrier, who have several hundred employees in their French plant."

Sullivan also quoted this "amusing yet pertinent" Lindahl observation on the English and French economies:

"England's economy is deteriorating with perfect order, whereas in France the economy is steadily improving with perfect confusion."

Lindahl added that France and Italy have responded most poorly to the ECA program, and although the national economy has gone forward, the standard of living of the people, which it is supposed to benefit, has declined.

Lindahl plans to return to active participation in the refrigeration industry next summer.

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If you can't be there, write to me today!



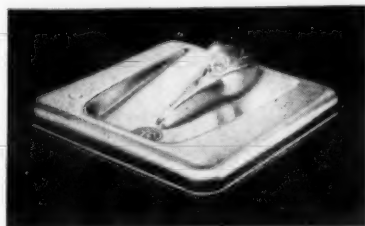
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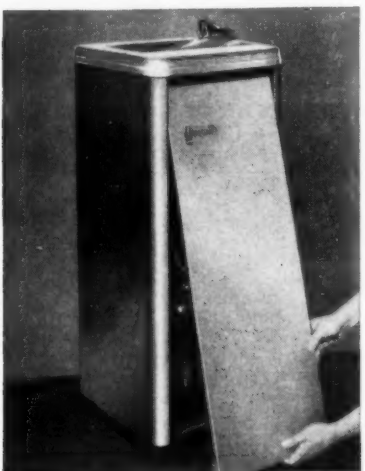
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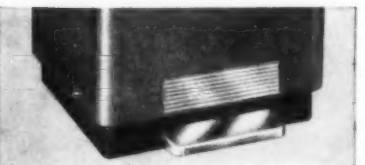
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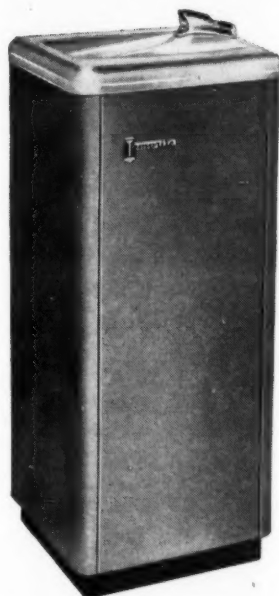
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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.

'Better Tools for Better Living'

MOST of the other postwar All-Industry Refrigeration and Air Conditioning Expositions have had some sort of a special theme. The first one, of course, was built around the idea of "see what the industry has developed for the postwar market." Later, when the lush postwar markets had been pretty well tapped, the Show carried the theme "Sell Again" to encourage improved merchandising practices.

For the now-in-progress 1951 Show, no particular "theme" or slogan was announced. Perhaps this is significant in itself, in being indicative that both the refrigeration and air conditioning industry and the Show have reached a degree of acceptance that no longer makes special slogans or themes a necessity.

There have been some suggestions that interest in the Show be built around the theme of "Come to the Show and See What's New In the Industry."

To say that Show visitors will see a great many "new" products is somewhat misleading. As a matter of fact, there have been few innovations produced by the industry since the end of World War II.

However, the improvement that has been made in types of equipment that have been on the market for years has been tremendous. And there has been a terrific upsurge in new techniques of applying the industry's products in the field.

Coupled with this has been the opening of a considerable number of new markets for refrigeration and air conditioning equipment. This development has not only involved brand new fields, such as the use of the industry's equipment in industrial processing applications—an outgrowth of wartime developments—but also the extension of its most standard application, in food processing and distribution.

What refrigeration and air conditioning has really created since the end of the War is Better Tools for Better Working and Better Living.

Such a variety of advances as automatic defrosting of commercial refrigeration equipment, improved controls that hold to closer temperature differentials, altered design of refrigerated fixtures making for both improved customer and storekeeper convenience, faster and easier-to-operate beverage dispensing and ice cream and dairy product devices, improved refrigerant controls—all these come under the heading of Better Tools for Better Working and Better Living.

In a final analysis, what the industry actually has to offer its markets is rarely something "brand new," but actually something that is "better" than what the customer is getting along with. The individual prospect for the industry's goods becomes a customer when he is convinced that the improved product is of such value or importance to him that he cannot afford to work or live without it.

It has been said of the home freezer and the low-temperature store merchandising cabinet that they have presented a new problem in selling because they are among the few items that haven't "replaced" some outmoded product. Actually, however, that viewpoint may be a misconception—if these items are not replacing a specific product, they are substituting a new way of doing things for an old way of doing things—and the growth of America has been geared to "new ways of doing things."

So we'll suggest our own motto for the All-Industry Show—the place to find the Better Tools to sell America a Better Way to Work and Live.

TEMPRITE PRODUCTS CORP.,
Box 72-A, East Maple Road,
Birmingham, Michigan

I want more information about Temprite Water Coolers.

☐ I am a distributor

☐ I am a service engineer

☐ I am

Company Name

Street

City

Zone

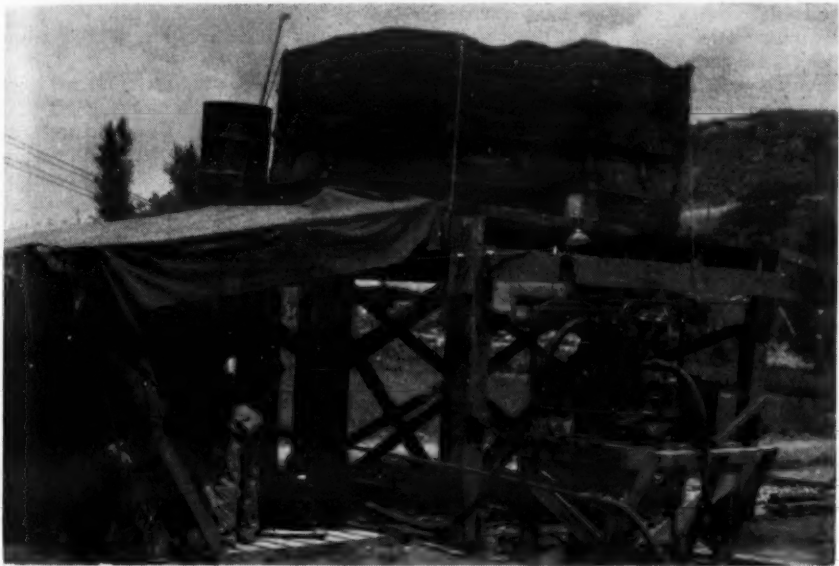
State

Signed

York Flake Machine In Korean Battle



YORK FLAKE GOES TO WAR—Major Robert Meisenhelder, U. S. Air Force, a native of York, Pa., poses alongside a DER-10 Flake machine at the Kimpo Airfield in Korea, which was only a few miles from the fighting front. Uses by the armed forces range from ice water for the parched throats of fighting men to the application of ice for local anesthesia and the prevention of shock in surgery.



NEAR THE FIGHTING FRONT in Korea this odd looking contraption is a water tank which provides the water for a York Flake machine, which is located under the canvas cover on the left. Even in the front lines it is not uncommon to find these amazing ice making units.

Montreal Dealer Double Talks (2 Languages) To Sell

MONTREAL, Que., Can.—Salesmen from Olympic Refrigeration, recently appointed Sweden seller, are telling their customers about Sweden Speed Freezers in two languages.

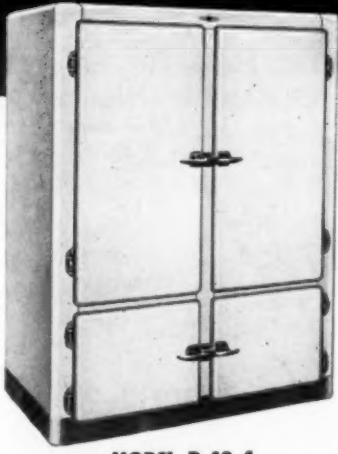
The firm is located at 2137 Delisle St. in Montreal where 75% of the population speaks French.

Jack Miller, proprietor, and P. C. Filiatrault, sales manager, organized

the company five years ago and began selling commercial refrigeration, restaurant, and butcher shop equipment. Increased demand has forced them to move twice, each time to larger quarters, to increase their sales force, and to open their own wood working shop.

The firm specializes in custom-built refrigerated cabinets.

**For LONG RANGE Economy
TURN TO THE P-H LINE!**



MODEL P-42-4

**Featuring
"GRAD-U-MATIC"
AIR CONDITIONING
and
"LIFETIME" PORCELAIN
OR STAINLESS STEEL EXTERIORS
51 REACH-IN MODELS
TO CHOOSE FROM
20 to 90 CU. FT. CAPACITIES**

For over half a century the Puffer-Hubbard Manufacturing Company has been building the finest quality commercial refrigeration cabinets and cases that it is possible to build. Such important features as Electrically Welded Steel Frames . . . Triple Thermopane Sealed Glass Windows . . . Fiber Glass, Vermin Proof, Sealed-in Insulation . . . Exclusive Grad-U-Matic Air Conditioning . . . Welded Interior Porcelain Linings and "Lifetime" Porcelain or Stainless Steel exteriors make them the most economical refrigerators to own and operate.



SEE YOUR NEAREST P-H DEALER . . . OR WRITE—

PUFFER-HUBBARD MFG. CO.
GRAND HAVEN, MICHIGAN

**REACH-IN, PASS-THRU and FLORIST CABINETS —
DOUGH RETARDERS — DAIRY-DELICATESSEN
AND DISPLAY CASES — WALK-IN COOLERS**

TWA's N.Y. Terminal Adds 3 Walk-In Coolers

Freezer, Produce Room, And Garbage Box Aid In Flight Meal Preparation

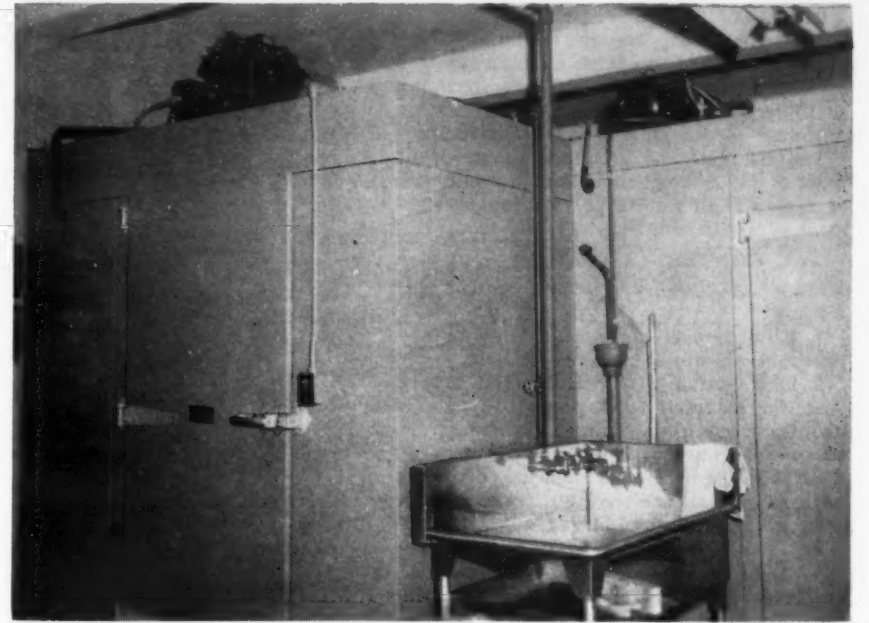
NEW YORK CITY—To improve its facilities for the storage and preparation of meals served its passengers on continental and oceanic flights, the Trans-World Airlines has added three refrigerated walk-ins to the commissary in TWA Hangar No. 5 at New York's International Airport here.

The installation includes a freezer room, a produce cooler, and a refrigerated garbage box, all installed by Santoro Bros., independent contracting firm in Brooklyn, operated by John Santoro and his three brothers.

Largest of the three rooms is the freezer room, which measures 8 by 12 ft. A combination of plates and a 3-hp. Servel water-cooled condensing unit, model SWL-300, maintains a temperature of -5° F. for holding frozen meats, fruits, and vegetables until prepared for meals which will be served in flight. The condensing unit is installed directly over the box.

Adjoining the freezer is an 8 by 10-ft. walk-in for fresh vegetables. Conventional storage temperatures here are achieved by a circular Bush ceiling unit connected to a 1-hp. SWL-99 Servel hermetic unit which is likewise mounted on top of the box.

This unit, by the way, is the first of this make and size using a steel



TWA'S PASSENGERS who are served tempting meals in flight can rest assured that the food's been kept under refrigeration. In the commissary department at one of TWA's hangars at New York International airport these two walk-ins were recently installed with the units sitting on top.

shell instead of a cast body to be installed in the New York City area, according to J. "Hans" White, metropolitan area distributor for Servel units.

In addition to these two coolers, Santoro Bros. also installed an 8 by 10-ft. garbage refrigerator which is refrigerated by another 1-hp. Servel hermetic unit. This maintains an even temperature of 36° F. to minimize garbage odors.

Hecht To Handle I-H Line

WASHINGTON, D. C.—D. Kaufman & Sons, wholesale distributor of International Harvester refrigerators and freezers in Baltimore and Washington, D. C., announces the appointment of the Hecht Co. of Washington, D. C. as an I-H refrigeration dealer in the area.

POSITIVE Control on ANY Application!

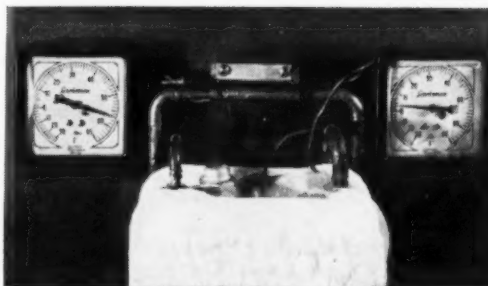
NEW — Model 207C Thermostatic Expansion Valve



Model 207C Adjustable Superheat Thermostatic Expansion Valve. New, advanced A-P design. For all temperature applications, without adjustment.

Model 207C can be furnished with external equalizer if desired. Two sizes: up to 1/2 ton and up to 1 ton Freon 12. Compact design for easy installation.

Positive Proof of Positive Control!



Here's positive and convincing proof of the efficiency of A-P Liquid Charge. In the unit pictured above, there is a 54 degree difference between valve and bulb — and the valve is mounted upside down! Despite these conditions, the bulb provides perfect control. Unusual? Yes; but typical of the efficiency and dependability you can expect from A-P Liquid-Charged Valves!

**Dependable Liquid Charge
Gives You POSITIVE Control
on Any Application — at Any
Temperature — In Any Position!**

When you use an A-P Liquid-Charged Thermostatic Expansion Valve — like the new, advanced Model 207C — you "tame" your toughest applications!

Because — no matter what the application — you get dependable, accurate control with an A-P Liquid-Charged Valve. You can install it right side up — upside down — sideways — or at any angle required by the installation. You can install it in any ambient temperature, either warmer or colder than the thermo bulb — or place it either higher or lower than the bulb; you'll still get accurate, POSITIVE control!

And besides, you don't need one valve for low temperature — another for commercial temperature — and still another for air conditioning. ONE A-P Liquid-Charged Valve can be used for ANY application. Get the story on the new Model 207C and other A-P Liquid-Charged Valves — today!



DEPENDABLE Controls

A-P CONTROLS CORPORATION
(formerly Automatic Products Company)

2460 N. 32nd Street • Milwaukee 45, Wisconsin

Export address: 13 E. 40th St., New York, N. Y. • In Canada: A-P Controls Corporation, Ltd., Cooksville, Ontario

Stocked and Sold By Good Refrigeration Wholesalers Everywhere • Recommended and Installed By Leading Refrigeration Service Engineers

Dealer Holds Prize Contest To Lure Service Trade to His Store

ELMIRA, N. Y.—Holden Electric, 306 S. Main St., boosted its appliance repair business with an unusual contest in which the store invited customers to write honest praise or criticism of its repair work.

The contest was launched in conjunction with the firm's appointment of a new head for its service department, Ray Grant.

CONTEST DETAILS

Here is the way the contest worked:

1. Elmira residents were invited to bring in an appliance for repairs.
2. The customer was instructed to "see for yourself how promptly we can do these repairs, and just how reasonable our price is."
3. The customer was then asked to write a short letter in 100 words or less, giving "honest praise or criticism of our work."
4. With the letter, the customer enclosed the stub he received when he brought in his appliance.

CONSTRUCTIVE CRITICISM WAS INVITED

Three prominent Elmira citizens served as judges for the contest. The store pointed out that a constructive criticism stood just as good a chance to win the contest as a letter filled with praise.

Elmirans were invited to bring in "anything from a lamp cord to a washing machine" for repairs.

First prize in the contest was a gas range; second prize a roasterette and third prize an electric egg cooker. Tied in with the contest was a special offer of \$1 on any old iron toward the purchase of a new iron.

GRAND GIVE-AWAY CONTEST



FIRST PRIZE

Beautiful Brand New Double Oven Gas Range, valued at \$29.95, to be given away absolutely free to the winner of our contest. This stove is guaranteed by Good Housekeeping, and has their seal of approval. Come in and see this Grand Gas Stove; look over its extra large oven for pies, and cakes, see its special characteristic over for broiling, and check on its safety-kitchen that locks the gas supply when the range is not in use. Then be sure to join our contest.

CONTEST RULES:

1. Bring in an appliance for repairs.
2. See for yourself how promptly we can do these repairs, and just how reasonable our price is.
3. Write us a short letter in one hundred words or less your honest praise or criticism of our work.
4. Enclose the stub we gave you when you brought in your appliance.

SECOND PRIZE—

EVERHOT ROASTERETTE

Complete with Cord. Value \$11.95.

THIRD PRIZE—

ELECTRIC EGG COOKER

Complete with Cord. Value \$5.95.

SPECIAL for the duration of our contest, we will allow you \$1.00 on your old iron toward the purchase of any of our irons priced \$9.95 and up.

Introducing RAY GRANT, our new appliance repair man. Mr. Grant, with fifteen years experience, claims that good repair work need not be expensive, and he aims to prove that to fellow Elmirans.

Buffalo General Motors Club Honors F. L. Riehle

BUFFALO—F. L. Riehle, branch manager of Frigidaire Sales Corp., was honored by members of the General Motors Club of Buffalo at a luncheon in Hotel Statler marking completion of 40 years of service with the company.

Riehle is the first employee of either the Delco or Frigidaire units of General Motors in the country to complete this many years of continuous service.

He was presented a gift by club members.

The Service Invoice

Why It's Important and What It Should Contain Outlined for Detroit RSES by Baragar

DETROIT—"Next to collecting your money, the service invoice is the most important part of your business," Jack Baragar of Johnston Refrigeration, local contracting and service firm, reminded his fellow members in the Detroit chapter of the Refrigeration Service Engineers Society recently.

Baragar told them why it was important and what an invoice should contain for the complete protection of the service engineer.

The invoice is important, he said, because:

WHAT IT IS

1. It is a reference.
2. It is a record of work done both for the customer and for the service company.
3. It is a record for warranty purposes.
4. It is a legal record of a transaction between the service firm and the customer. It shows that the service firm has performed a service to the customer for which it is entitled to payment.

"If properly filled out, the service invoice will stand up in a court of law and help you collect the money to which you are entitled," Baragar declared.

What should the service invoice contain?

WHAT'S IN IT

To be complete, it must contain at least the following information, according to Baragar:

Date.
Name, address, and telephone number of the customer.

An account number. (No matter how small the firm, an account number will be a great convenience to the bookkeeper and will give evidence that every job to come in has been taken care of.)

(Baragar explained that, for the firm that employs servicemen, the account number shows that the serviceman has turned in the money for every job and has not just shoved the invoice in his pocket and forgotten about it.)

Type of equipment by make, manufacturer, model, serial number, and location. (This information protects the serviceman from claims by the customer that the service work was never performed on the machine on which he wanted the service.)

The trouble reported.

Work done and by whom.
Materials used on the job, by quantity, part number, and price. Baragar noted that the price of parts, charge for labor, and sales tax should all be shown separately on the invoice to show the customer just what he is paying for. Lumping them all in one charge tends to destroy the customer's confidence, he indicated.

GET IT SIGNED

If the work is not done c.o.d., the terms of payment and the date payment is due should be on the invoice. When the date for payment is shown, there is no cause for misunderstanding on the part of the customer, he noted.

Customer's signature. That is the most important item on the service

invoice, Baragar emphasized. Always get the customer's signature.

The signature indicates that the customer is aware that the service has been performed and that it is presumably satisfactory to him. It eliminates such situations as the serviceman slipping in, servicing the equipment, and leaving without the customer ever knowing that he was there.

The fact that the customer signed the invoice recently won a judgment for one service firm. This firm had performed more than \$350 worth of service for which the customer refused to pay. The judge said that it was the signature on the invoice that decided the case.

These are the basic elements of a service invoice, Baragar concluded. Beyond these things the invoice can contain any other information the service firm deems desirable. At least two copies should be made of the invoice—one for the service firm and one for the customer. Any number of additional copies may be made to fit the organization of the company.

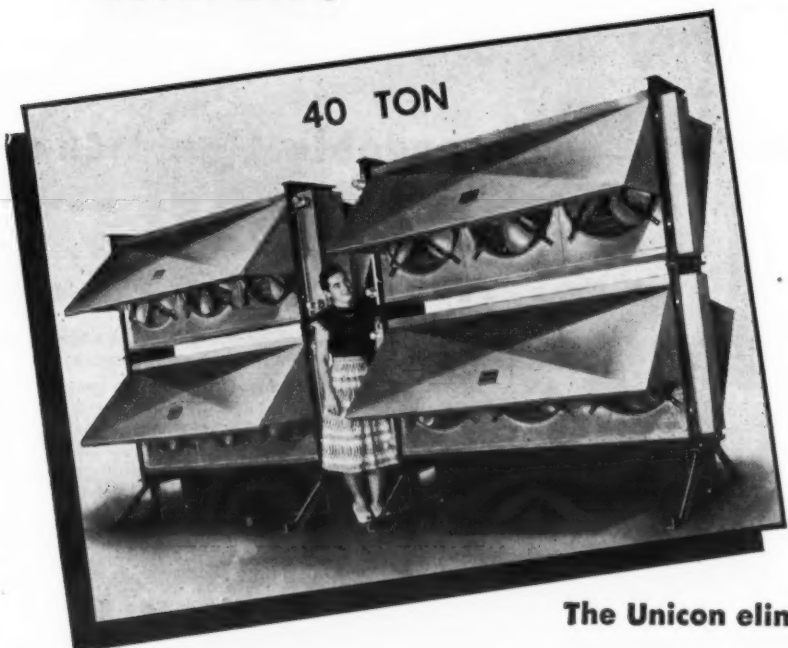
After Baragar's talk, one serviceman in the audience commented that it would be a good thing to get the customer's signature before the work was started, such as the automobile repair firms do.

Baragar replied that he did not think that this was necessary for the refrigeration service firm.

"When the customer calls you up for service, that is sufficient authorization to go ahead with the work. You do not need his signature ahead of time. It works out all right in the vast majority of the cases. Once in a while you might have a little trouble, but not often."

Any SIZE COMPRESSOR CAN BE AIR COOLED WITH UNICON

WITHOUT THE USE OF ANY WATER!



WRITE FOR BULLETIN U-177-S

REMOTE TYPE AIR COOLED CONDENSER

For capacity greater than 10 ton, 2 or more Unicons are used. Mounting stands, hoods, and wind deflectors are available for simplified outside mounting.

The Unicon eliminates all water problems!

SPECIAL APPLICATIONS—Write to us about your condensing problem.

KRAMER TRENTON CO. • Trenton 5, N.J.

DRIFREEZ

Reg. U. S. Pat. Off.

Outperforms All Dehydrators by Test

Never Stores Water

Removes to 1 1/2 oz. Physically

Neutralizes All Acidity

Prevents Corrosion and Plating

Perfectly Filtered

Units Never Require Baking By Vacuum

SAVES ENDLESS SERVICE CALLS

Tested for Safety by Engineering Laboratory

SEND FOR BROCHURE

BERNA CORP. RICHMOND HILL 18, N. Y.



LIFETIME PRECISION!

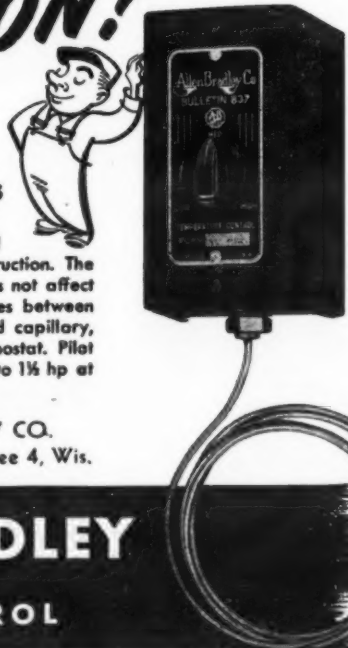
Bulletin 837 Temperature Controls

Give accurate control for a long period because of their simple, rugged construction. The temperature of the surrounding air does not affect the setting. Available in different ranges between -50 F and 500 F with remote bulb and capillary, with immersion bulb, or in a room thermostat. Pilot duty rating is standard but ratings up to 1 1/2 hp at 220 volts are also available.



ALLEN-BRADLEY CO. 1313 S. First St. Milwaukee 4, Wis.

ALLEN-BRADLEY MOTOR CONTROL



Multiplexing Compressors

Problems of Equalizing Pressures, Prevention of Slugs Can Be Solved

Editor's Note: When W. F. Patrick, field engineer in Atlanta for General Electric's Air Conditioning Department, read an article in the Sept. 3 NEWS about installing reciprocating compressors in multiple, he was prompted to point out "other and, I think, more desirable methods of piping at the compressors" than those illustrated.

He sent along copies of two G-E bulletins on "Refrigeration Piping" with specific references to suggestions therein on multiplexing compressors. Excerpts and illustrations from these bulletins follow.

"When two or more units are connected in parallel, the possibility must always be considered that one may stop due to abnormal control operation even if all compressors normally operate together," states the bulletin.

"For this reason, a common trap for all units should be provided so that if one does stop, the gas going to the operating units will entrain the oil in the trap and prevent any from collecting to slug into the inoperative unit when it starts again."

TRAP IN SUCTION LINE

Recommended arrangement for suction line piping where the common line is above the compressors is shown in Fig. 1. "Incorrect" method is shown in Fig. 2.

"If the common suction line is above the compressors, a single vertical pipe is sufficient to connect it to the common trap at the compressors. If the common suction line is located below the compressors, precaution must be taken to size the individual suction lines for a velocity (1,500 f.p.m. minimum for normal refrigeration and air conditioning temperatures) adequate to insure proper oil return."

With respect to equalizing lines between multiplexed units, the G-E bulletin says in part:

"Compressors operated in parallel must have the normal oil level of all compressors at the same level. Their crankcases must be connected together by a gas equalizing line as a 'U' to prevent the forming of traps in the lines (see Fig. 3). If they are run straight across from the compressor equalizer connections, any sagging of the gas line will result in an oil trap and any upward bow in the oil equalizing line will form a gas trap."

"In paralleling rigidly mounted units, the flexibility of the tubing used for equalizing lines will take care of the vibration. In special

cases where noise or vibration considerations require that the compressors be set on flexible mountings, flexible connectors should be used on the equalizer lines.

"When flexible connectors are used, one should be installed in the vertical leg of each equalizing line. These flexible connectors should not be on the horizontal runs because they may sag and cause traps."

HOW TO PIPE CONDENSERS

Also part of the problem in paralleling compressors is what to do about condensers. G-E's recommendation is this:

"Although better performance is usually obtained by the use of one adequately sized condenser properly installed for paralleled compressors, conditions sometimes make it advisable to use two. The use of two condensers presents an additional problem of maintaining proper pressure drops.

"Referring to Fig. 4, assume that compressor B is inoperative as might well occur during capacity modulation. If the equalizer is long and offers a path of greater resistance than that between compressor A and condenser A, the pressure in condenser B will be less than in condenser A.

"The greater portion of the gas will flow into condenser A, but instead of flowing into the common liquid line, part of the liquid will flow into condenser B. This may cause the liquid level in condenser A to drop below the outlet connection and permit hot gas to enter the liquid line. This tendency will be even more pronounced if there is no equalizer between the hot gas lines.

"The equalizer line should be short and of adequate size to insure minimum pressure drop. It is important that the difference in pressure drop between the paths that the gas would travel from either compressor to the condensers be less than 1 lb."

G-E recommends the arrangement shown in Fig. 5 where dotted lines indicate piping arrangement when condensers are above compressors.

F. M. Ingersoll Buys Interest in Manufacturers' Agency

MARIETTA, Ga.—F. M. Ingersoll announced that he has purchased an interest in Fred M. Ingersoll Co., Atlanta, manufacturers' agents serving the southeastern states. Ingersoll has been associated with the commercial refrigeration field since 1928, serving 21 years as New England sales manager for McCray.

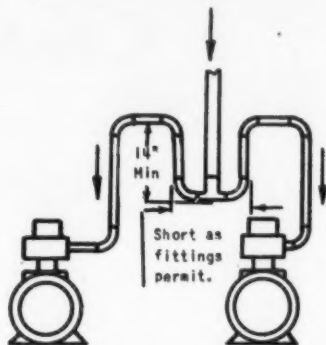


Fig. 1—Common trap in suction line is recommended.

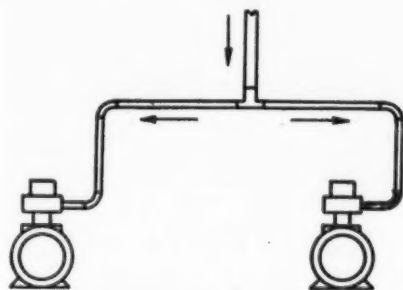


Fig. 2—Without trap oil can fill suction line to idle unit. Not recommended.

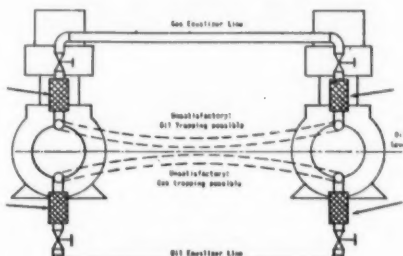


Fig. 3—Recommended lines for equalizing pressure. Arrows show flexible connectors.

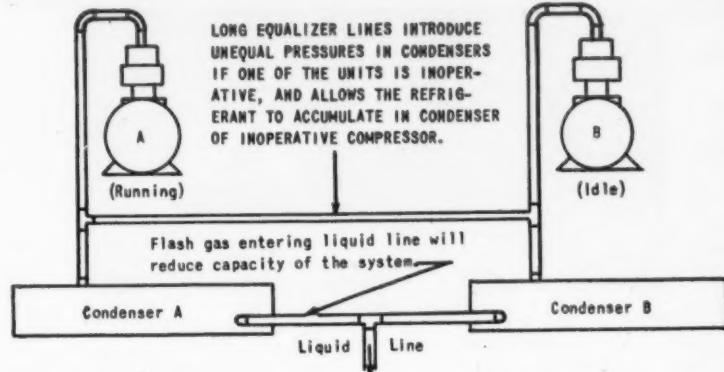


Fig. 4—This method of connecting condensers in multiplexed units is wrong, according to G-E, because with one compressor off most refrigerant will collect in condenser of inoperative unit, permitting flash gas to enter liquid line.

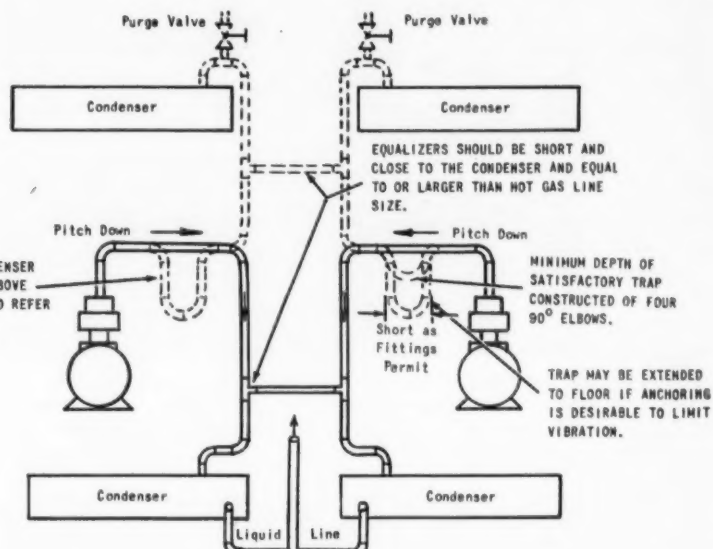


Fig. 5 shows method recommended by G-E for paralleling units with individual condensers. Dotted lines show arrangement if condensers are located above compressors.

**ALWAYS MORE
EXTRA VALUE FEATURES
FOR YOUR MONEY
IN EVERY REFRIGERATION NEED**

KEROTEST

Always greater value

KEROTEST

at no extra cost!

SEE YOUR

KEROTEST

WHOLESALE

KEROTEST MANUFACTURING CO.

PITTSBURGH 22, PENNSYLVANIA

SWIFT FAN BLADES

Standard Equipment with Most
Refrigeration Equipment Manufacturers

PLATED HARDWARE

KITCHEN and BATHROOM VENTILATORS

SWIFT MANUFACTURING CO., Inc.

1455 E. NINE MILE ROAD
HAZEL PARK, MICHIGAN



EXHAUST fan and ventilators on roof of diner's kitchen sharply reduce load on air conditioning system.



KITCHEN heat is pulled out through large stainless steel exhaust hood above cooking area. That's Mrs. Taifer, the proprietor's wife, removing dishes from shelf where an infrared fixture keeps food warm until waitress picks up her order.



YEAR-ROUND air conditioner (left) serving diner has a built-in evaporative condenser. Note automatic ice cube machine at right.

Continuous Food Service

Deluxe Diner Operating 24 Hours a Day, 7 Days a Week Requires 15-Ton Air Conditioner, 10 Condensing Units

By C. Dale Mericle

DOYLESTOWN, Pa. — Matching the gleaming attractiveness of the shiny new Ed's Diner here is one of the neatest refrigeration and air conditioning installations that can be seen hereabouts—an installation that involves two or three special tricks, also.

And it's not a small installation, for the diner seats 87 and requires a 15-ton year-round air conditioning system plus 10 condensing units to provide refrigeration of food, water, and ice cream which are served at many meals in the course of the popular diner's 24 hours a day, seven days a week operation.

The refrigeration and air conditioning contract was handled by Simmons & Conrad, small independent contracting firm located in nearby Hatboro which is operated by Philip Conrad. Both Hatboro and Doylestown are a few miles north of Philadelphia.

Although he doesn't limit himself to this type of work, Conrad has installed equipment for a dozen diners in this area and so is well versed with their problems.

"We had been doing the service work at the diner Ed Taifer operated before just 50 yards from the new one," Conrad explains. "Evidently, Taifer was satisfied with our work, for we got the new job even though we weren't the lowest bidder."

In fact, Conrad is seldom the lowest bidder on any job, he says, because he prefers to put in a good, sound installation rather than cut corners to reduce the price. This has lost him some jobs, he admits, but he also has a growing list of satisfied customers who are proud to

show his refrigeration installations to visitors. There have been quite a few restaurant men who've given Ed's new diner a good inspection, showing considerable interest in the refrigeration and air conditioning setup.

The latter consists of a 15-ton year-round U. S. Air Conditioning Co. self-contained unit with a built-in evaporative condenser located in the basement of the diner and connected to ductwork.

"This size may seem a little large, but the diner is a big one and has a greater load than may be generally recognized," Conrad comments.

L-Shaped Dining Area

Dining area proper, which is L-shaped around the kitchen, seats 87 and is usually crowded, he points out. Extensive use of glass is made on both sides of the L, which also adds to the load. Conditioned air is also supplied to the small office of the owner, two restrooms, and the women's lounge, besides the dining area.

No ductwork runs to the kitchen but special provision has been made to ventilate the food preparation room. More details about this later.

Air from the unit in the basement is distributed through a 25 by 25-in. riser which branches out to supply five Agitair rectangular diffusers mounted in the ceiling down the length of the car. Return air from the dining area is picked up through vertical grilles located in front of the counter at floor level.

In the office, restrooms, and lounge, air is discharged into the space through small Anemostat diffusers which also contain light fixtures.

"The owner wanted to avoid cutting any more holes in the ceiling than absolutely necessary, so I suggested using these combination diffusers and light fixtures," explains Conrad.

Versatile Control

Operation of the air conditioning system is controlled by a Minneapolis-Honeywell ductstat located in the return air duct in the basement of the diner. Conrad made special provision, however, to give the owner of the diner a convenient means of turning the air conditioning unit off entirely or merely letting the fan operate during the milder weather of spring and fall. He installed a double-pole double-throw switch in the wall of the owner's office which gives this choice of manual control.

For the evaporative condenser which is built into the air conditioner in the basement, Conrad installed a length of duct to run the discharge air from the condenser out of doors. The 400-c.f.m. fan on the "evap" pulls air from the basement. A window is kept open to supply air to the basement for this, and the fan also pulls out quite a bit of the warm air which accumulates in the basement from the row of 10 condensing units.

The problem of handling the air for the kitchen area was solved in an interesting manner. Naturally, all

the heat that results from cooking must be exhausted from the kitchen, but Conrad didn't want to lose too much conditioned air through the kitchen exhaust system. The solution was this:

An 8 by 12-ft. stainless steel exhaust hood was installed in the kitchen over the ranges, deep fryers, steam tables, etc., connecting to a 32-in. square opening on the roof where an 11g PRV-50 exhaust fan is located. This takes care of the exhaust.

"Then to prevent the conditioned air from getting into the kitchen and being exhausted, we installed three ventilators on the roof of the kitchen. We also keep one window open in the kitchen," Conrad explains.

"The ventilators and the window admit enough air to equal the amount drawn out by the exhaust fan, so this fan doesn't pull any air to speak of from the dining area. We've checked this several times and found that the airflow from the dining area through the doorway into the kitchen never exceeds 2 f.p.m."

Extensive use of refrigeration is made in the diner, and all the equipment Conrad installed is heavy-duty.

Uses Heavy-Duty Equipment

"This costs more, but heavy-duty equipment gives much better results," he says. "Also, few people seem to appreciate the heavy service load that is encountered on a busy diner. And there's an additional strain put on the equipment because the diner operates 24 hours a day every day in the week."

Refrigerated equipment in the diner includes three walk-in coolers, a reach-in, soda fountain, bain-marie, ice cube maker, two double-duty display units for salads, desserts, and bottles, and four water-cooler stations.

In the basement of the diner are located the York ice-cube maker, which has a capacity of 450 lbs. of ice a day, and two walk-ins. The latter are side by side and each measures 6 by 12 by 8 ft. high.

One of the basement coolers is held at 0° to -5° F. to serve as a freezer. It is equipped with fully automatic Larkin hot gas defrost coils which are connected to a 2-hp. Copeland hermetic air-cooled unit. All 10 of the diner's remote condensing units, in fact, are Copeland air-cooled hermetics. Walls of the freezers are insulated with 6 in. of Mundet cork, including the wall between the utility or vegetable box.

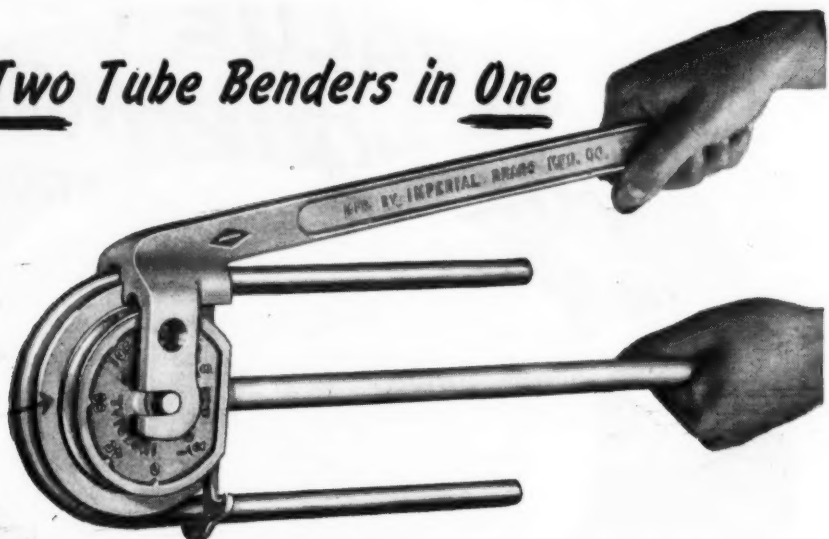
Other walls of the latter cooler are insulated with 5 in. of cork. Low side here is a Recold blower coil powered by a ¼-hp. unit.

The third walk-in is located upstairs in the kitchen and is 6 by 8 by 8 ft. in size. It is a stainless steel job with a Recold DL88 diffuser connected to a ¼-hp. unit.

"This might be considered over-size by some, but there's a heavy heat and service load in such a diner so we think it requires a bigger low side and condensing unit than might nor-

(Concluded on next page)

Now Get Two Tube Benders in One



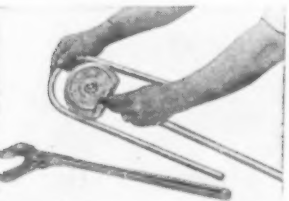
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Showing ease with which tubing is placed in bender. Slide block is pushed into position with slots in arms engaging pins of mandrel.



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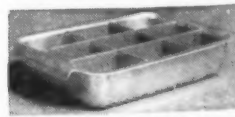
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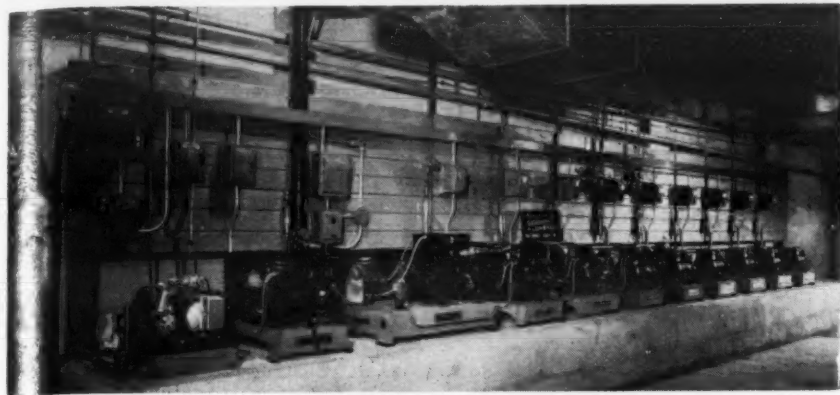
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SUPERIOR workmanship which marks installation is readily apparent in this imposing line-up of condensing units and panel board.

Condensing Units Have Unique Setup--

(Concluded from preceding page)
mally be expected," declares Conrad.
To help prove his point, this contractor has installed Auto-Lite dial thermometers on the outside of the walk-ins. Unless the door is allowed to stand open an unusually long time, the temperature change due to the service load is hardly registered, thanks to the "oversize" equipment which has quick recovery capacity.

It is in this walk-in that Conrad installed a special rack to hold standard trays normally used by bakers.

"Most users of walk-in coolers make very inefficient use of this valuable refrigerated space," points out this contractor. "What usually happens is that when the cooler is being installed, the owner tells the contractor that he'll install shelves later. In nearly every case, however, the owner never gets around to hav-

ing this done. Thus he winds up piling stuff on the floor. We ourselves always stress the importance of shelving when we sell a cooler and try to get the okay to install the shelving when we put in the cooler."

The particular rack that Conrad devised here is constructed from wooden uprights and cross braces and fitted with lengths of comparatively light-weight angle-iron on each side to hold the trays. The angle-iron pieces are rather closely spaced to permit considerable variation in racking the trays.

"Got the idea from a dough retarder refrigerator," Conrad explains.

At Ed's Diner, the trays are employed in the following manner: Such things as shrimp, fish, and salads are prepared in advance of the rush hour and placed on trays which fit into the racks in the walk-in. This has proved extremely useful with French fries, according to Conrad. These are blanched and stored on the trays ahead of time, but only one tray is brought out of the refrigerator at a time. Thus they aren't exposed for more than a very short time to the hot atmosphere of the kitchen before being cooked in the deep fryers as the orders come in.

Besides this walk-in there is also a 48-in. bain-marie and a 42-cu. ft. four-door reach-in located in the kitchen. The former unit is refrigerated by means of a Kramer DC-2 diffuser and a 1/2-hp. unit.

Converted Ice-Bunker Job

The reach-in was moved from the owner's previous diner and was formerly an ice-bunker job. It was so well built, however, that it was decided to convert the job over by installing a Bush diffuser connected to a 1/2-hp. machine.

Out front in each wing of the diner behind the counter is a double-duty refrigerated display fixture to hold desserts and salads ready for serving. Bottom compartment of each fixture provides refrigerated bottle storage space. DC-2 Kramer diffusers and 1/2-hp. units handle the cooling for each one.

Four drinking water stations have been installed for the diner, also, one being in the aisle while the other three are behind the counter. These are supplied by a water-cooling system using the Temprite 108 water cooler. The job is hooked up to two 1/2-hp. condensing units, each handling the load for two of the water stations.

Also out front behind the counter is a soda fountain connected to a 1/2-hp. condensing unit.

All 10 remote units plus the carbonator for the fountain are neatly mounted in a row on a concrete base in the basement which is raised 2 ft. off the floor. Incidentally, Conrad's firm did all the wiring and plumbing for these units and the air conditioning system in addition to the usual installation.

2 Special Features

There are two features of this part of the installation that are especially worthy of note aside from the exceptionally neat appearance which obviously implies careful workmanship.

An unusual method of mounting the condensing units to minimize vibration was employed by Conrad here. First pads of 1/2-in. thick live rubber were cut to closely match the mounting bases on the legs of the units. These pads were then carefully located on the concrete platform and cemented to the concrete with Miracle cement, the contractor explains. Then cement is applied to the top of the pads and the bottom of the mounting legs of the unit and the unit placed on the rubber pads in the predetermined location.

"Not only does this give us a vi-



RACK for baker's trays built in cooler provides efficient use of valuable refrigerated space.

bration-free installation, but it's also much quicker and simpler than drilling holes in the concrete for bolts or pre-setting studs," Conrad contends.

Surprisingly enough, this provides a very secure mounting and it requires considerable leverage to pry the units loose. One man merely lifting the base of the unit won't budge it beyond the give in the rubber.

Above the units themselves is a large panel board running the full length of the compressor platform.

Here again, the contractor comes up with something a little different.

"We install the panel board so it's about 4 in. out from the wall. We do this to form a flue such as is used on many household refrigerators to help direct the flow of air across the condenser," he states.

This undoubtedly increases the efficiency of the machines, although how much Conrad isn't sure. But again it makes for a neater installation and simplifies piping and wiring problems.

Each unit is also equipped with a Henry drier and Cee-Kleer sight glass in line with this contractor's practice of installing a drier and sight glass on every installation.

Shrimp Trawler Can Freeze 1,025 Lbs. In 3 Hours

CORPUS CHRISTI, Tex.—Refrigeration equipment on the trawler *Bravos*, owned by Albert Schmid, Dr. W. C. Triplett, and Dr. Charles A. Mella, was designed and installed by Morgan Engineering Co. here.

The system follows the design of the high humidity freezers used by the meat industry and is composed of a refrigerated brine tank; freezer which will freeze 1,025 lbs. of shrimp in 5-lb. one-piece boxes in three hours at -25 to -30° F.; and a storage compartment capable of holding between 40,000 to 50,000 lbs. of shrimp at a slightly higher temperature.

The system is operated by two 15-hp. Petters diesel engines turning two Worthington refrigeration compressors. Although both will probably be used all of the time, either one can maintain the desired temperature.

Ullom Named Purchasing Agent For Westinghouse Appliance Div.

MANSFIELD, Ohio—Appointment of Warren Ullom as purchasing agent for the Westinghouse Electric Appliance Div. was announced by J. H. Ashbaugh, vice president.

He succeeds E. L. Smith who was recently made works manager of the new plant Westinghouse is building in Columbus, Ohio.

Ullom, who was division service supervisor at the Newark, Ohio plant of the company, is succeeded in that post by L. J. Weaver, former supervisor of the order service department there.

Admiral Sales, Net Income Drop After Heavy Buying

CHICAGO—Both sales and net income during the third quarter of this year were far below those of the same period last year when consumers were buying heavily following the outbreak of the Korean conflict, the Admiral Corp. reported recently.

Sales for the third period this year totaled \$31,331,832 as against \$63,629,146 last year. Respective net income figures were \$1,306,735 or 68 cents per share and \$5,253,685 or \$2.72 per share.

For the first nine months, 1951 sales were \$134,919,187 as against \$166,924,994 in 1950. Net income was \$5,400,156 or \$2.80 per share this year and \$13,176,417 or \$6.83 per share last year.

Admiral said that it has a substantial backlog of government electronic orders on which it has already started deliveries.

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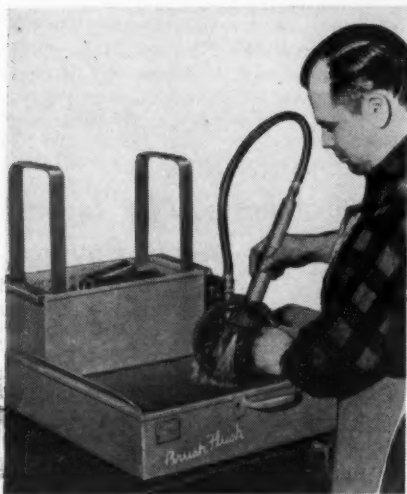
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What's New

When requesting further information on new products, please use "Information Center" form.

Brush-Flush Has Hollow Handle for Solvent Flow



Brush-Flush bench type parts cleaner.

KEY NO. A-1110

EVANSTON, Ill.—A bench type parts cleaner featuring a hollow handle brush through which the cleaning solvent flows has been introduced by Graymills Corp. located here.

Called Brush-Flush, the unit uses 3 gals. of solvent. The solvent is pumped by electrical pump through

a tube to the hollow handle brush. As the parts are brushed clean, the solvent washes away oil, grease, and dirt to a large screen platform, it is pointed out.

The parts are cleaned on the platform which catches the dirt flushed off the parts. Small particles of grit, chips, etc., that pass through the platform screen with the solvent are retained by the baffle or second filter screen located at the pump intake.

A 2½-gal. soak tank with dip basket, independent of the main tank, can be used with either the same or a different solution.

The Brush-Flush can be placed on a work bench and plugged into any 115-volt outlet. Nylon or bristle brushes are offered by the manufacturer, who also produces a full line of Agitor parts cleaners and Agitene cleaning solvents.

The main tank is 20 in. long, 20 in. wide, and 4 in. deep. The soak tank is 13¼ in. long, 7 in. wide, and 9 in. high. The screen platform measures 20 in. long and 12¼ in. wide; without the soak tank it is 20 by 20 in.

The unit carries a \$49.50 price tag, f.o.b. factory, complete with soak tank and basket.

Viking '777' Blower Unit Designed for Home Use



KEY NO. A-1111

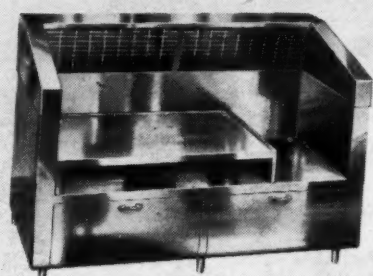
CLEVELAND—Viking Air Conditioning Corp. here recently introduced a 7-in., 7-speed direct-drive "winter air conditioning" blower unit called the "777" for homes of 7,000-cu. ft. volume or less.

A rheostat selector permits the operation of the "777" at the exact speed required by heating and weather conditions. A turn of the knob provides from 250 to 700 c.f.m., without mechanical adjustment.

The "777" operates with furnaces of up to 42,000 B.t.u. per hour rating. Its ¼-hp. motor develops from 650 to 1,100 r.p.m.

The unit measures 24 in. high and 20 in. square. It is finished in silver-gray hammertex enamel. A standard, full-size 400-sq. in. filter is part of the "777's" equipment for use with standard controls.

Sprayed Coil Dehumidifier Announced by Kennard



KEY NO. A-1112

ST. LOUIS—Kennard Corp. here has announced the addition of sprayed coil dehumidifiers to its present line.

The units are available in a large number of sizes and are of galvanized construction with copper tube and copper finned coils for long life.

Kennard sprayed coil dehumidifiers are claimed to offer the advantage of washed air at all times plus wetted surface of the cooling coil for better heat transfer and closer DB-WB approach.

The unit is also suited for use as an evaporative cooler for off-season.

ideal for use in luncheonette setups.

The grille stand is claimed to exhaust all cooking odors and to do away with the overhead hood. Fumes are exhausted through filtered openings at each end and across the back, an exclusive GRC feature.

The stands can be supplied with removable full or partial length, support shelf to accommodate a griddle, deep fat fryers, etc. Space is provided under the shelf for plates or utensils.

Made in two sizes, 50 in. and 60 in. long, the stand is of all welded steel construction and is stainless steel faced on all exposed surfaces.

Under-Counter Formula Units Shown by Jewett

KEY NO. A-1114

BUFFALO — Two under-counter type milk formula refrigerators for use in hospital nurseries have been announced by the Jewett Refrigerator Co., Inc. here.

The model D 3144 has a total storage capacity of 72 bottles. It provides two shelves, each of which will hold six baskets with six formula bottles per basket.

Both interior and exterior of the refrigerator are finished in polished stainless steel. The stainless steel work top is provided with a 6-in. high splashback.

The refrigerator measures 4 ft. wide, 2 ft. 4 in. deep, and 3 ft. high. Three inches of corkboard insulation is used.

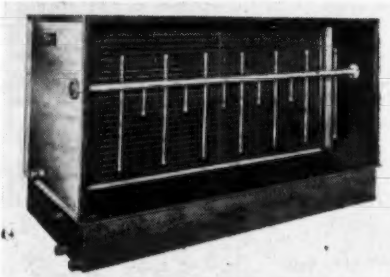
The refrigerator is powered by a ¼-hp. hermetically sealed condensing unit located at one end of the cabinet. An "A" type finned blower coil is located between the condensing unit and the refrigerated space.

The refrigerated compartment is entered through a front-opening door. The door is equipped with a hasp for padlocking.

Where the model D 3144 is intended for use in the formula room or nursery itself, the D 3127 is intended for use as a central supply in the main formula room to supply smaller units in the nursery.

The D 3127 has the same construction features as the D 3144 but offers twice the storage capacity (144 bottles). It consists of two compartments each entered through a front-opening door with the blower coil between the two compartments. A ¼-hp. hermetically sealed condensing unit is used on this model.

Down-Draft Grille Stand Ideal for Luncheonette



KEY NO. A-1113

GRAND RAPIDS, Mich.—A down-draft grille stand manufactured by Grand Rapids Cabinet Co. is termed

It's unique...
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What's New (Cont.)

Crosley Makes Ice Cream Freezer Accessory on '52 Line



KEY NO. A-1115

FIRST INTRODUCED AS exclusive in certain of last year's models, Crosley Div., Avco Mfg. Corp., is making an automatic ice cream freezer available as an accessory for all models of the completely new 1952 line of Crosley Shelvador freezers. The ice cream freezer, which has an electrically-driven paddle-type mixer, can make a half gallon of ice cream in 30 to 45 minutes inside the freezer and then automatically shut itself off when the ice cream has reached the proper consistency. Here it is shown being placed inside a Crosley custom model CDF-14.

Standard Introduces New Adjustable Capillary Valve



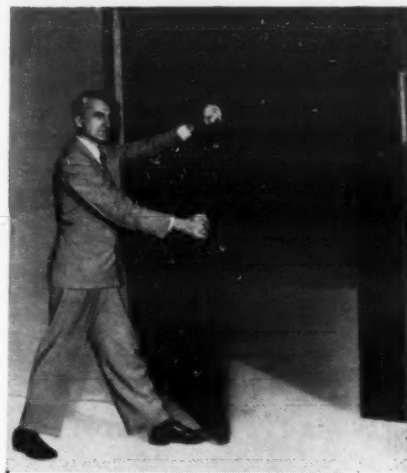
KEY NO. A-1116

CHICAGO—Standard Refrigeration Co. here has introduced an adjustable capillary valve that can be used with all types of low pressure refrigerants. The capacity of the present model will cover a range of 1/20 to 1/4-hp. units employed on either high or low temperature applications.

Pressure drop can be raised or lowered as required. The valve can be opened and cleaned in case of clogging or it can be flushed on the job and reset without any loss of refrigerant.

The adjustability of Standard's new restrictor will make it possible for the service engineer to carefully balance the capillary capacity to the condensing unit and the design operating conditions, the manufacturer declares.

Experimentation will no longer be necessary as to the bore diameter and length of the capillary for the particular application in question, for Standard's new valve can be adjusted on the job.



Flexible Rubber Door Has High Insulation Value

KEY NO. A-1117

CAMBRIDGE, Mass.—A swinging rubber door, so light and flexible it can be bent to a right angle, has been developed for use in cold storage warehouses, it has been announced by Oliver C. Eckel, designer of the door and president of the Stic-Klip Mfg. Co.

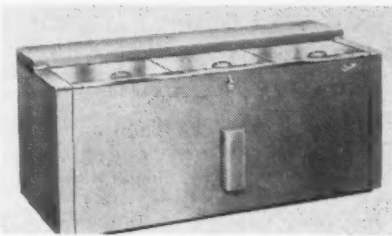
"The new door will eliminate the maintenance and damaging of conventional wooden doors caused by power trucks banging into the doors to open them," Eckel said.

The rubber door, which swings open at a touch, easily absorbs the shock of the trucks, gives maximum ease of passage, and returns to its normal closed position, he added.

Actually a reinforced rubber air container, the door is constructed of

an outer layer of heavy cloth inserted rubber which covers a "frame" of 2-in. rubber tubing. Support and resiliency are provided by 15 to 25 inflated rubber bladders specially designed and manufactured by Dewey and Almy Chemical Co., Cambridge. These bladders, running cross-wise inside the rubber facing, are positioned between rubber spacers.

Though the door is only 2 1/2 in. thick, it has high insulation value, Eckel stated, a smooth outside surface and so little inertia that the pressure of one finger opens it. Extremely light weight compared to metal protected wooden doors, it is suspended on hinges attached to steel strips running along one side.

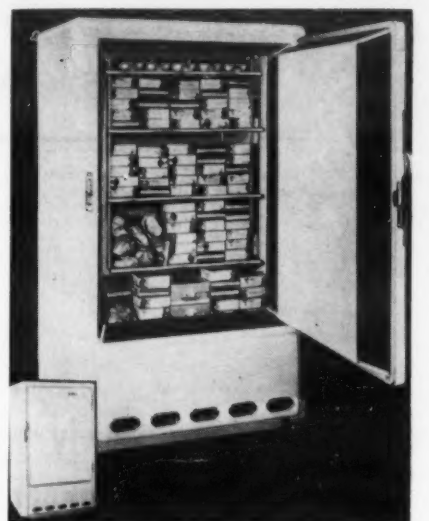


2 United Under-Counter Coolers Only 33-In. High

KEY NO. A-1118

HUDSON, Wis.—United Refrigerator's new under-counter dry service bottle coolers are designed for installations where height is at a premium but where quality, beauty, and top performance are still demanded.

These fixtures combine a skillful fabrication and design ingenuity. Only 33 in. high, they are available in both 6-ft. and 8-ft. sizes.



Jordon Adds 15-Ft. Upright Reach-In to Freezer Line

KEY NO. A-1119

PHILADELPHIA—Jordon Refrigerator Co. has announced production of a new upright, reach-in-type freezer for frozen food storage.

For home and commercial use, the new model measures 72 in. high, 40 in. wide, and 31 in. deep (including door and hardware). It has a total storage capacity of 15 cu. ft., equal to approximately 500 lbs. of food. In addition, a quick-freezing ice cube tray shelf, with five ice cube trays, is supplied as standard equipment.

Model UF-15 is equipped with refrigerated freezer-plate shelves.

The freezer cabinet has a continuous 6-in. blanket of Fiberglas insulation, unbroken by wooden frame.

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The *Crystal Tips* brochure, "How to Subtract up to 85% from Your Present Costs for Ice" is a powerful sales tool. It compares your customer's present ice costs, based on his own records, with *Crystal Tips* profits. The figures right there, in black and white, will show him the *Crystal Tips* Ice Maker pays for itself in a surprisingly short time.

And cutting costs is just one of the advantages of the *Crystal Tips* Ice Maker. Add to this the convenience—point-of-use storage, no clean-up chores, constant full supply—and the fact that slow melting *Crystal Tips* cool drinks faster and keep them fresh longer.

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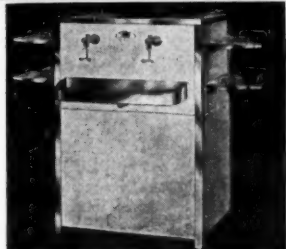
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MC-14-S MC-43-S MC-25-S MC-40-S

COOLERS FOR MESS HALLS — CAFETERIAS

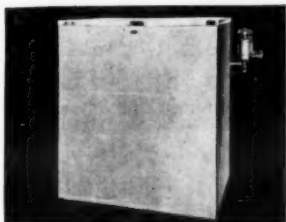


Taste-Master

Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.

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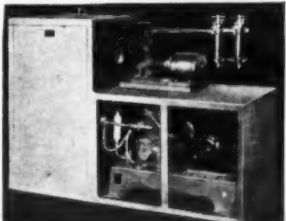
Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.



PH-7 PH-14 PH-25

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Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5-400 g.p.h.; storage 5-150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Typical "Packaged" Circulating Chilled Water System

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Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10-1000 g.p.h.; storage 7-300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Remote Model Coolers

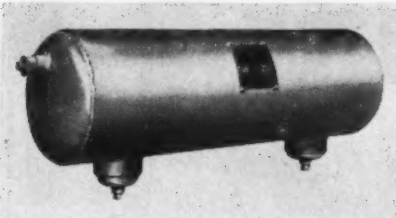


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"Water Coolers and Filters for 40 Years"

What's New (Cont.)



Acme Introduces Newly Designed Heat Exchanger

—KEY NO. A-11110—

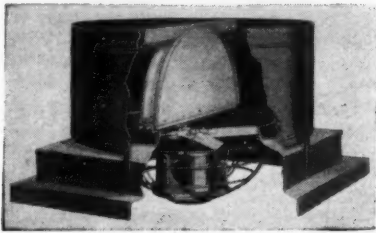
JACKSON, Mich.—A newly designed heat exchanger that offers extremely low pressure drop and provides maximum gains in the refrigeration system for any desired superheating effect will be introduced by Acme Industries, Inc. at the Seventh All-Industry Exposition in Chicago.

The company says that with the new design, the gas side of the units may be packed with unequaled amounts of secondary surface, while the danger of slop-over is reduced.

All models up to and including IX 60 are suitable for "Freon-12" or "Freon-22" service. A complete line is available for capacities up to 200 tons. Larger models are standard for "Freon-12" and are available on special order for "Freon-22."

These Acme heat exchangers are constructed and tested in accordance with A.S.M.E. code and are approved by Underwriters Laboratories.

Simplicity, Lowness Are Ventilator Features



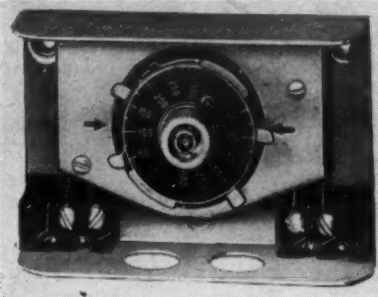
—KEY NO. A-11111—

CLEVELAND—An addition to its line of powered roof ventilators is announced by The Swartwout Co. here.

Of the "straight-through" type, the new unit features simplified design and low over-all height without sacrificing efficiency, according to the company.

The ventilator is "open" only when its propeller fan is operating, the air stream being utilized to open and hold two semi-circular halves of the damper while forcing unwanted elements out of the building. A streamlined fan ring directly above the square-tipped blade propeller is said to guide the airstream smoothly without back-flow.

Called "Whirlout," the new unit is supplied in a wide range of sizes and capacities. It is completely weather-tight at all times.



Crise Markets 2-Speed Furnace Fan Control

—KEY NO. A-11112—

COLUMBUS, Ohio—Crise Controls division, Acro Mfg. Co., is now marketing a new two-speed furnace fan control for use on gas, oil, or coal fired warm air heating equipment. It carries two separate electrical circuits having individual S. P. D. T. switches.

When the furnace bonnet temperature rises to the low speed fan setting, the fan will start operating at this speed and will switch to high speed only when the bonnet temperature reaches the higher setting. The action reverses as bonnet temperatures fall.

Designated as Model FAF-15, this unit features visible scale settings and temperature indication. It has a bi-metal helix temperature element made in insertion lengths up to 18 in.

The control case itself measures 5 1/4 in. wide by 3 1/2 in. high by 3 1/2 in. deep. It is available either with or without swivel mounting.

Current Literature Available

To obtain further information on the literature listed below please refer to key number preceding listing. Please use the "Information Center" form on "What's New" page.

G-E Manual Gives Data on 'Personal Weather Control'

—KEY NO. M-1110—

BLOOMFIELD, N. J.—Application engineering data on General Electric's "personal weather control systems" is provided in a new 64-page manual prepared by G-E's Air Conditioning division here.

The manual contains comprehensive and detailed information for the application of unit air conditioning systems in multi-room buildings and should prove helpful and interesting to architects, consulting engineers, contractors, builders, and owners of office buildings, hotels, apartment houses, hospitals, and similar structures, G-E believes.

Pamphlet covers reasons for choosing the system, its applicability to various types of buildings, system design considerations, and application data such as selection of units, system arrangements, and suggested handling of related aspects of the installation.

The system described is not new, having been used for the past 17 years in applications with chilled water or direct expansion plants.

grade of oil, methods which can be used to assure uniform quality and efficient combustion, how to diagnose fuel oil troubles and how to remedy them, and how to get maximum value from each fuel oil dollar.

Under Troubles and Remedies are listed 22 of the common fuel oil troubles, their symptoms and the remedy to follow in each case.

The text, which includes 34 tables, is divided into 24 chapters covering chemistry of petroleum, petroleum refining processes, grades and types of fuel oils, gravity, heat of combustion, viscosity, water and sediment, carbon, ash and salt residue, flash and fire points, pour point, sulfur, color, distillation, preheating of oils, sampling storage tanks, stability of fuel oils, fuel oil treatments, re-claimed fuel oils, blending of oils, transposition and storage, fuel oil specifications, and complaints and causes of troubles.

"Fuel Oil Manual" is Fabrikoid bound, 6 x 9 in., and contains 160 pages. Published by The Industrial Press here, price is \$3.50. Canadian or overseas postage 40 cents.

BBB TV Booklet Tells Consumer What To Expect

—KEY NO. M-1113—

PHILADELPHIA—A pamphlet entitled "What can you rightfully expect from your TV set and your dealer?" has been published "for the public benefit" by the Better Business Bureau of Philadelphia.

The folder discusses reception, antenna, financing, do's and don'ts, contract signing, manufacturers' warranties, service contracts, how to get good TV service, and what causes "ghosts."

Manufacturers, distributors, financing agencies, retailers, service agencies, and television stations all cooperated in the preparation of the folder, the bureau reported.

George W. Connor of the bureau said that copies of the folder are available at 2 cents each (plus postage) in lots of less than 1,000, and at 1 1/2 cents in lots of 1,000 or more.

Bulletin Describes Use Of Prestolite Equipment

—KEY NO. M-1111—

NEW YORK CITY—A bulletin on the use of Prestolite equipment including halide leak detectors was published recently by Linde Air Products Co. here.

The 16-page bulletin contains numerous illustrations of the various applications of Prestolite equipment and tables showing sizes of Prestolite torch stems for use on standard size copper tubing, a table of soft solders and their melting points and uses, and a table of fluxes for use with different metals.

'Fuel Oil for Fuel Users' Is Non-Technical Study

—KEY NO. M-1112—

NEW YORK CITY—A book on fuel oil for the fuel oil user has been written with a minimum of technical language by Paul F. Schmidt, chief chemist, Allied Oil Co., Inc. of Cleveland.

Called "Fuel Oil Manual," it deals with salient facts about the properties, selection, handling, and burning of fuel oil.

Covered in this book is complete data on the properties of fuel oil, the possibilities and limitations of each

8-Page Catalog Describes Electriglas Radiant Heating

—KEY NO. M-1114—

BERGENFIELD, N. J.—"Radiant Sunshine Comfort for every heating purpose" is the title of a new Electriglas radiant heat catalog issued recently by the Appleman Glass Works.

The 8-page catalog No. EL-16 explains Electriglas radiant heating and then describes the various forms of panels that the company makes.

Bundyweld's construction and physical properties make it the ideal refrigeration tubing for your plate, wire, or fin and tube condensers.

Bundyweld is the only tubing double-walled from a single strip, with a

patented beveled edge. It's copper-brazed through 360° of wall contact into a stronger walled yet thinner walled tubing of great bursting strength and excellent heat transmitting properties. Bundyweld is leakproof. It's

smooth and clean inside and out.

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You can easily bend Bundyweld to short radii without danger of weakening it. But if your condenser design poses bending problems, call in our engineers for advice. Or if you choose, we'll produce your condenser tubing parts. (Our serpentine benders have a well-deserved reputation for producing better and more uniform bends.) Write us today.

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THE SUPERFLOW MANUFACTURING COMPANY

invites inspection of the revolutionary new beverage dispensing system that will be on display in operation at the 7th All-Industry Refrigeration and Air Conditioning Exposition. Booth No. 516.

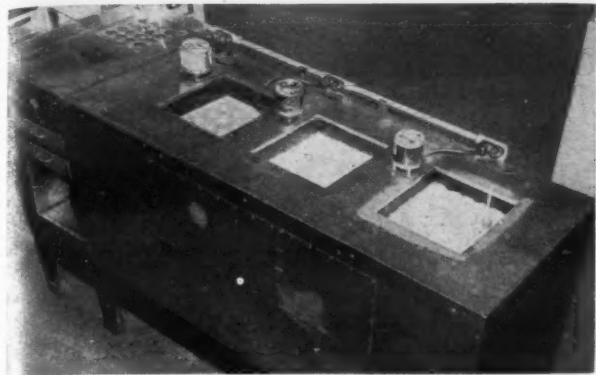
The equipment features:

- Balanced automatic pressure thermostatically controlled
- Circulation of beverage to accomplish refrigeration of lines and keg without use of precooler
- Self-cleaning
- Flexible on installation
- Minimum service
- Compact packaged item low in cost
- Solves all dispensing problems faithfully preserving brewed-in gases, flavor and taste.

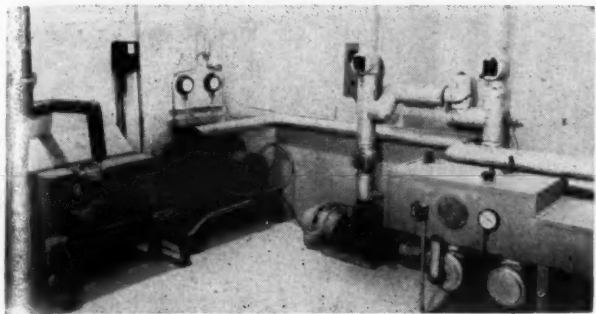
Allocations allow materials to adequately supply a limited number of distributors. Licenses available in a few territories.

SUPERFLOW MANUFACTURING COMPANY

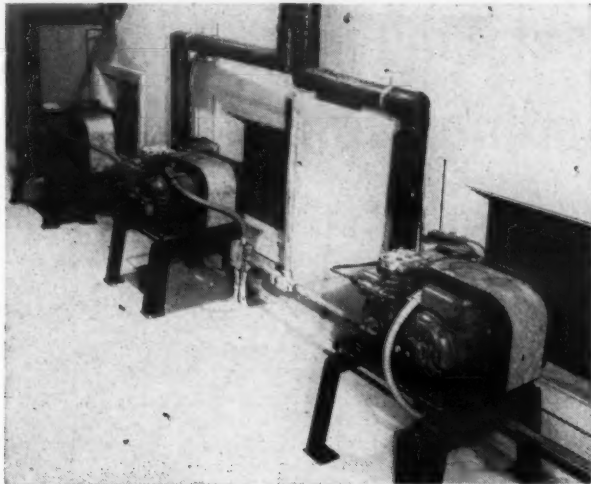
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Cleveland 15, Ohio



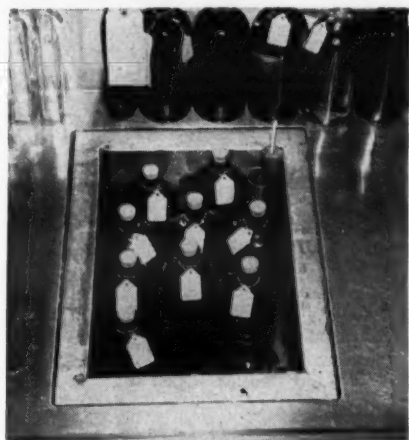
THREE "BATH" cold box is used in research on pour point and other characteristics of oils.



ON THE LEFT is the compressor for the "Freon-12" system that supplies refrigeration to D 86 gasoline distillation test area. Center and right side show York "Freon-12" and ethylene glycol system that supplies refrigeration to 18 "baths."



EACH "BATH" in the cold box has its own Kelvinator compressor. Temperature of each system is stencilled on wall above compressor.



WATER CHILLED by ethylene glycol cools samples of petroleum products prior to testing. There are 18 of these "baths."

each bath is chilled to the degree it is needed, 33° to 35° F. The desired temperature is controlled by Fenwall magnetic switches.

As there is some loss of glycol in a system as lengthy as this one, a reservoir of ethylene glycol was installed at the highest point to replenish the system. As the loss is less than a quart a week, it is more economical to add the glycol than to dismantle the system to locate minor leaks.

All piping in the various systems of the laboratory is color coded. In the lab, the acoustic type ceiling is specially built with quick-disconnect sections where the piping runs. The combination of the two makes for rapid tracing of lines in case of trouble.

The refrigeration setup at the El Segundo lab includes four other "Freon-12" systems besides the ethylene glycol system for the baths. Three of these go to the "cold box." The "cold box" is a specially designed stainless steel three-bath cabinet which is used to test the pour point and other characteristics of lubricating oils and fuel oils.

Each hole is kept at a definite temperature. One is maintained at 32° F., one at 0° F., and one at -30° F. Each system has its own Kelvinator compressor, the size ranging from 1/4 hp. to 1/2 hp. The temperature of each bath in the cold box is controlled by a Fenwall magnetic switch. Each compartment is immersed in ethylene glycol through which are run coils containing the "Freon-12."

The other "Freon-12" system supplies refrigeration for the D86 gasoline distillation test area. Here the temperature is controlled at 32° to 34° F. by Mercoid switches.

G-E Inaugurates Electric Blanket Service Exchange

BRIDGEPORT, Conn.—A new "service-exchange" program that reportedly permits "an immediate solution of all service complaints" on General Electric automatic blankets has been instituted by the company.

Under the plan, an owner of an inoperative G-E blanket or blanket control simply takes it to the nearest blanket servicing dealer or distributor and exchanges it for a new unit.

According to Robert O. Fickes, general manager of the automatic blanket department, "the new program eliminates the need of maintaining blanket repair operations at the company's appliance service centers. From now on, many dealers and distributors will be authorized as service centers."

"In this way we shall greatly improve blanket service," he said. "Owners will receive new blankets and controls instead of rebuilt ones. And they won't have to wait while their blankets are sent to a repair center for expensive repairs."

The plan covers all G-E blankets manufactured since 1945.

All replacements are made with deluxe PB-15 blankets and controls. Owners of PB-5 automatic blankets, which were produced just after the war, may replace them with a comparable PB-15 blanket of comparable model and color at a cost of \$19.95. Fickes said the exchange would be made whether the old PB-5 blanket was operating or not.

A blanket "round-up" promotion has been launched by the company, its distributors, and dealers "to bring in the old PB-5 blankets."

Modern Petroleum Research Depends Upon Refrigeration for Control of Testing Units

EL SEGUNDO, Calif.—Today's research and quality control in a modern laboratory of a large oil company is a far cry from the "good old days." Refrigeration now plays an important role in the endless quest to bring better and better gasoline, oil, and other petroleum products to the public.

For correct chemical research and analysis of petroleum products, it is necessary for samples being tested to be cooled to various temperatures before being put through test equipment. In the old days reducing the temperature of samples meant the almost endless job of crushing and chopping hundreds of pounds of ice.

At Standard Oil Co.'s refinery here, it meant crushing, chopping, and hauling of 1,000 to 1,500 lbs. of ice each day. But now in their modern research laboratory, refrigeration has taken over the cooling

job. Test samples are chilled in "baths." The term "bath" is used to identify the container holding chilled water in which bottles containing the test samples are immersed to be cooled.

How many separate locations can one relatively small refrigeration system satisfactorily serve? At Standard's laboratory an ethylene glycol, "Freon-12" system installed by Commercial Refrigeration Co. of Los Angeles, using a York 3-hp. compressor supplies the needs of 18 separate units or "baths."

The compressor supplies "Freon-12" to a tank holding the glycol and a pump forces the chilled glycol into the system to the 18 takeoff points to the baths. Each bath is a double walled stainless steel container filled with water. The cold ethylene glycol circulates in tubes between the walls and chills the water. The water in

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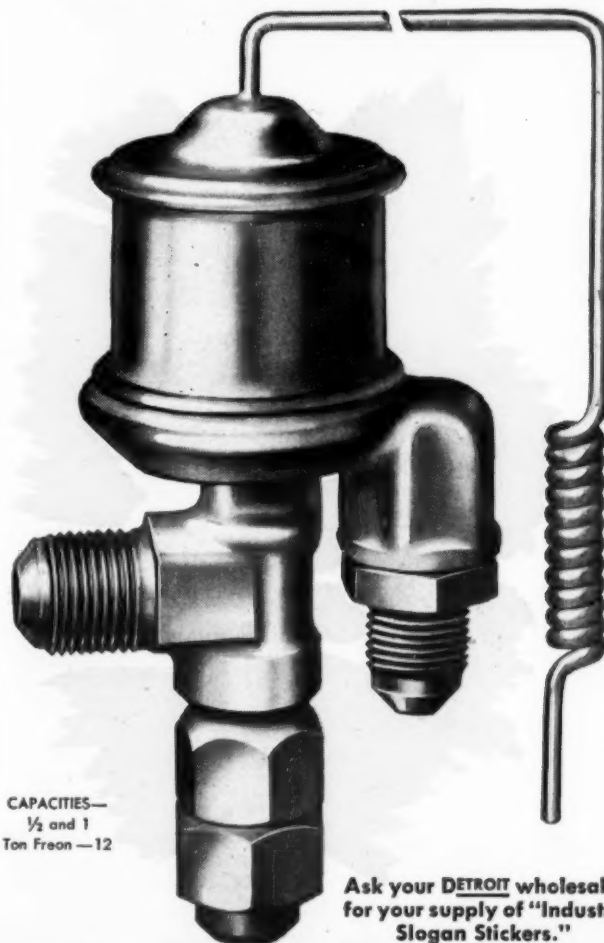
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Patrons of Large, Swank Apartment Building Have Individual Control of Air Conditioning

PHILADELPHIA — First apartment houses of their size to be completely air conditioned, the new 21 and 25-story Rittenhouse-Claridge and Rittenhouse-Savoy are nearing completion on swank Rittenhouse Square here.

It's too late, though, to look for apartments there. They were completely rented six months ago despite the \$85 to \$300 a month charge, thanks chiefly to their location plus air conditioning.

The latter is provided by a York year-round system comprising remote type fan units located beneath windows which are supplied with chilled or hot water from a central plant. Total cooling capacity for both buildings adds up to 1,100 tons.

INDIVIDUAL CONTROL PROVIDED

Considerable range of individual control is provided in the conditioner units located in each apartment. Occupants can regulate the fan manually to low, intermediate, or high speeds, or off. They likewise can regulate the proportion of outside air being brought in from 0 to 100%. Units in each apartment are completely independent of each other and of those in the other apartments.

Further flexibility of control is achieved by zoning of the systems for both buildings to compensate for varying sun effect and outdoor temperatures. Automatic controls permit

colder water to circulate through units in those zones where the sun effect and temperatures are highest. A somewhat similar arrangement is provided for winter operation.

Chief components of the Rittenhouse air conditioning systems are the CF300 and CF450 fan window units for which York claims a number of advantages in multi-room type of installations. Their narrow depth (9 in.) and low height (24 in.) require little space, for example.

Outside air inlet can be taken in any point in the rear of the unit. In the Rittenhouse apartments an air inlet box was designed to provide a sealed inlet through the masonry wall, a water trap to prevent water blown in through the grille from running into the building, a drain to carry away the trapped water, and means for mounting the decorative grille on the outside of the building.

A fresh air damper is provided at the bottom of the unit directly below the air filter. This is so designed that as the damper is opened the return air is throttled to insure a positive suction for outside air. An air baffle is provided, however, in the base of the unit to prevent outside air blowing directly into the room and causing drafts if the fan is shut down and the fresh air damper partly opened.

The outside air damper is controlled manually by a knob in the recessed control panel on the top of

the unit. Amount of outside air can be varied by this control from 0 to 100%, but all the air delivered to the conditioned space passes through removable filters.

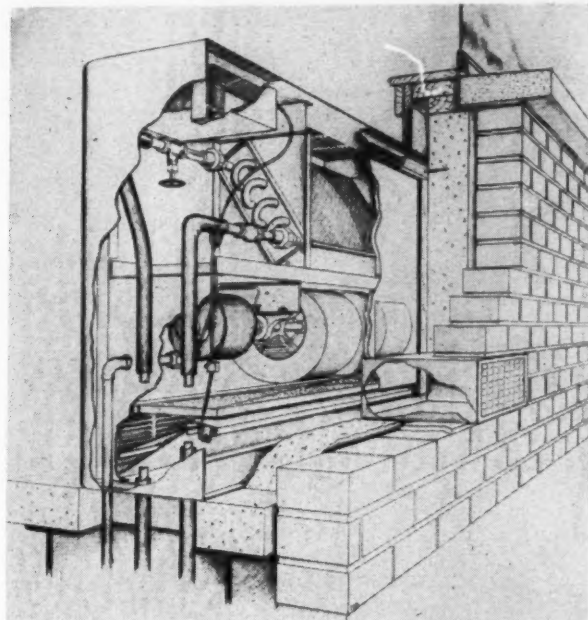
In the same recessed control panel is the knob for manually regulating fan operation at three speeds or off. Centrifugal type fans are employed, two on the CF300 models, three on CF450. Fans are designed for continuous operation, which is recommended during winter, in fact, to prevent freeze-ups.

Model CF450 is rated at 14,000 B.t.u./hr. with room conditions of 80° and 50% r.h.; outside conditions of 95° d.b. and 78° w.b.; 20% outside air, and the normal amount of chilled water being supplied. Under these conditions the CF300 unit is rated at 9,000 B.t.u.

SAME PIPING AND COIL FOR HEATING, COOLING

Same piping and coil are employed for both heating and cooling. Piping connections at each unit are three: supply water, return water, and condensate drain. According to York, this saves considerably in time and installation costs and permits lines to be run between the floors and in small pipe chases. Chilled and hot water pipes have premolded rubber insulation on run-outs with 1-in. molded wool felt and 1½-in. foam glass on larger piping.

In piping up the units York



LEFT: Individual control of year-round York air conditioning installation in two swank new apartment buildings on Rittenhouse Square in Philadelphia is provided by units receiving chilled or hot water from centralized system. Cutaway shows major components of room unit, including connection through wall for outside air.



RIGHT: Casing of room unit being moved into place in one of the rooms of the new apartment buildings.

recommends using the reverse return system since it requires a minimum of adjustment to obtain the proper flow through each unit. Some adjustment will be required, however, since flow resistance usually varies from unit to unit.

The over-all piping and water-circulating system is based on the zoning of the two apartment buildings, each of which is divided into three zones: east, west, and north.

During summer operation chilled water is supplied to the system in each zone where the primary control is a thermostat in the supply water line controlling a three-way mixing valve. This thermostat, in turn, is reset according to a predetermined schedule by a Solarstat

which reacts to outside temperature and sun effect.

In operation, when the load due to sun effect is reduced, the Solarstat will reset the thermostat to a higher temperature. The thermostat, in turn, then causes the mixing valve to close off the supply of cold water from the chiller and open the return line from the individual fan units to the recirculating pump to produce the desired temperature rise in the water being supplied to the units.

The control system devised by Minneapolis-Honeywell operates in reverse during the winter. As outside temperature falls, the mixing valve would supply water at higher temperature to the room units.

(Concluded on next page)

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PIONEERS in refrigeration... nationally accepted for outstanding performance. Day in and day out Employee and Customer alike can rely on Federal performance... whenever they want it.

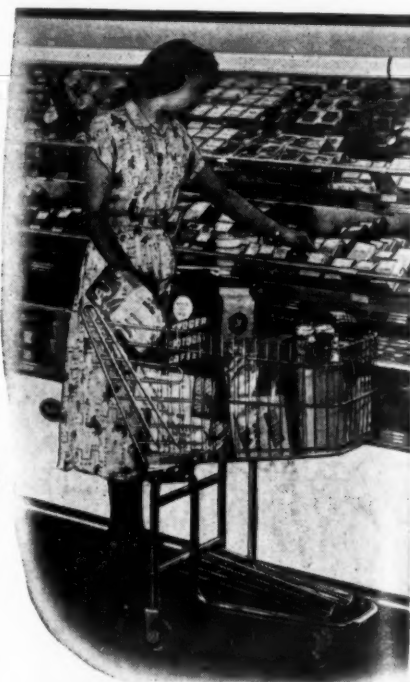
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Cooling Equipment Costs \$300 per Apartment, but It's Proving Its Worth

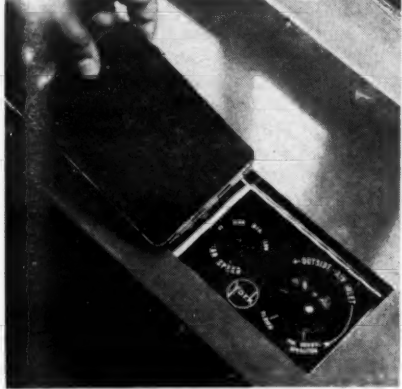
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The zone control system has no connection with the fan and outside air controls provided in the room units, but this arrangement will relieve the occupants of the necessity of anticipating changing conditions due to sun effect and exposure.

Operation of the system requires steam during summer as well as winter. This is piped in from a district plant to three Patterson-Kelley type "O" hot water heaters, each of which is to handle 785 g.p.m. of water from 123° to 140° at 5 p.s.i.g. of steam. Two units will normally operate, the third serving as a standby.

Conservation of condenser water used in the refrigerating plant will be achieved by a redwood filled cooling tower. This is designed to cool 2,100 g.p.m. of water from 95° to 85° at 78° F. w.b. The tower will hold city water consumption down to about 50 g.p.m. Two 75-hp. Ingersoll-Rand pumps handle condenser water at a rate of 2,100 g.p.m. at a 110-ft. head. Normally, one pump operates, the other is on standby.

Pumps for circulating chilled water are 60-hp. Ingersoll-Rand models.



CONCEALED control panel on top of unit permits occupants to regulate fan speed (left) and amount of outside air admitted to conditioner.

Cost of the Rittenhouse air conditioning installation is said to run between \$650,000 and \$700,000 for both the heating and cooling. More than half of this went for cooling, but York believes the system involves less investment in both first and operating costs than would other methods of air conditioning a building of this type.

ONE HALF OF \$650,000 INVESTMENT WENT FOR AIR CONDITIONING

Over-all cost for both apartment buildings and land is estimated at \$10,000,000, so the year-round air conditioning system represents about 7% to 8% of the total capital.

This averages out to an equipment cost of \$750 per apartment, of which \$450 is for cooling equipment, \$300 for heating. Apartments at the Rittenhouse buildings are small, averaging 1.8 rooms each.

Operation of the air conditioning system will cost the building owner between \$6 and \$8 a month per room. On a year-round basis the total operating cost has been estimated at \$14,000 based on a 24-hour operating day and including the cost of operating the York turbo compressor, fan units, circulating pumps, and cooling tower pumps and fans.

It should be pointed out that \$6 to \$8 per room operating cost includes slightly higher allowances for winter heating charges than would normally be expected. This contingency is provided since the apartments will have forced ventilation thanks to the fan units, which will naturally increase the heating costs somewhat.

Rentals of the apartments will run high, however. The smallest, which consists of one room plus bath and kitchenette, will rent from \$85 to \$100 a month. Rental will run from \$275 to \$300 a month for the largest apartments containing three bedrooms.

The combination of location and air conditioning is credited for securing 100% occupancy despite the monthly rental charges, so it is thought that the air conditioning system will more than pay for itself. An additional point which has been made is that air conditioning has attracted desirable and stable types of tenants.

Locker Operators Told of Profit To Be Realized from Handling Ice Cream

CINCINNATI—Ice cream offers locker plants a good source of increased income whether they retail it or make their own, operators were told in a "profit parley" held during the 12th National Frozen Food Locker Convention here.

One operator from Mechanicsburg, Pa.—Mark Winger—told how the manufacture and sale of ice cream has built his locker plant's volume up to \$270,000 a year, of which only \$33,000 comes from processing and rental of the 1,200 lockers in his plant.

"It's my firm opinion that a locker plant which operates merely as a locker plant is facing difficulty," he said. "We feel it very advantageous to manufacture our own ice cream."

"The freezer wasn't too expensive, and our -30° F. hardening cabinet is in the bulk storage room. By manufacturing and retailing, our margin is greater. But be sure you have good equipment, be very particular about the process, and have a good mix," he cautioned.

UP TO 800 GALS. PER WEEK

"We make and sell 700 to 800 gals. of ice cream a week. We close on Sunday but we're open until 10 p.m. every evening. We have two trucks on the road and this is where we get our big volume," he revealed.

"We go down the street and contact every house as a prospect for ice cream. And then we make deliveries to regular customers every week. We try to get there approximately the same time every week, and we carry nothing on our trucks except ice cream, covering both city and farm customers."

"Some farmers buy 5 gals. a week. We carry only ice cream on the trucks because by the time we get 20 flavors of ice cream in quarts, half gallons, and gallons on the truck, there's no room for anything else."

GROSS PROFIT UP 50%

"The gross margin of profit runs 40 to 50% on sales, and is positively the most profitable part of our operation. However, we've had to work hard to develop this business," Winger declared.

"We net a minimum of 20% on the truck operation. Of course, you have to set up the routes properly to get the most customers for the least miles."

"We're also very careful that our ice cream is tops in quality because we do have the largest and best ice cream manufacturers in the country located in Pennsylvania who are competitors."

They're not competitors in the home delivery field though, Winger points out, which gives him something of an advantage.

"If the manufacturers want to compete they'll have to put trucks on the road, too, but then their retail outlets would object."

An ice cream manufacturer who also operates locker plants in Sioux City, Iowa, thinks "locker operators are overlooked on ice cream sales," he told the parley.

"The operator who is going to sell ice cream must keep his plant open later than 6 p.m. Most ice cream is sold between 5 and 8 p.m.," advised

O. M. Roe. "If you keep a girl there, the ice cream sales will pay her salary and the light bill. Our plant is open from 9 a.m. to 10 p.m. seven days a week."

"The ice cream manufacturer in your own town will help you. He'll furnish you a cabinet. Try to buy your ice cream from a manufacturer who can furnish you a good cabinet—if possible, a self-service cabinet without a cover," Roe suggested.

(Incidentally, in opening his remarks Roe complained: "Being a manufacturer of ice cream we sometimes think our distributors want too much—cabinets, neon signs, etc.")

"Open cases increase sales tremendously. Never put the ice cream cabinet too close to the locker room door. When a woman comes out her glasses are fogged and she can't see the ice cream cabinet."

COMBINATION PACKAGES

"Have packages in the cabinet that the customer wants—gallons, half gallons, and quarts. The half-gallon size seems most popular, probably because the customer can get more flavors. Also we offer a combination package containing four quarts of different flavors."

"Ice cream manufacturers will help you merchandise their product," Roe told the operators. "We ourselves have a 'flavor of the month' plan and we promote this with a direct mail campaign."

"Because ice cream won't keep in low temperatures too long—it gets

grainy—we recommend that customers buy only a month's supply at a time. Some customers are interested in popsicles, etc., but we think they take up too much space."

"From the manufacturer's viewpoint, the locker plant is an ideal retailer, because the manufacturer has to make only one delivery a week. The average plant has sufficient capacity to hold a week's supply of ice cream," Roe reminded the group.

EASY TO GET INTO ICE CREAM BUSINESS

The ease with which the average locker plant should be able to get into the ice cream retailing business was stressed by another operator, Robert Funkhouser, Sr., of Paoli, Pa.

"We felt our locker plant was a logical place for ice cream. At first we merely put the ice cream in the bulk room and put up a list of flavors on the wall. Our volume grew without any special promotion."

"Then we approached the ice cream company for a cabinet. They gave us one. This way you haven't laid out any money except for your inventory."

"In our first year, 1947, we had a profit of \$378 on ice cream. In 1948, the profit was \$594; in 1949, \$1,026; in 1950, \$1,107."

Suggestion that "the bookkeeper in a locker plant has enough spare time to handle retail sales of such things as ice cream" was offered by the leader of the discussion, A. L. Sprague, operator from Jackson Center, Ohio, who was elected president of NFFLI at the convention.

"Any decent restaurant," he added, "is considered a 1,000-gal. a year outlet for ice cream. A locker plant ought to do at least this much. To

keep your overhead down, confine your sales to carry-out ice cream packages."

He pointed out too that where ice cream manufacturers loan a cabinet to retailers, they charge more for ice cream, usually 10 cents a gallon.

Some locker operators, it was indicated at the parley, have been known to concentrate on sales of vanilla ice cream only by pushing toppings.

Another operator reported he offered a special price to ice cream customers by selling them 10 quarts for the price of nine.

"At first, the patrons put the ice cream in their lockers, but we found that some of them didn't use it fast enough so it became grainy. Then we devised something like a lard card for ice cream. The patrons buy the card, which entitles them to 10 quarts of ice cream from our general stock."

"This has been satisfactory, and in fact," he admitted, "quite profitable. A number of patrons lose or misplace their ice cream cards before they're completely punched, so we sell them another."

Jess Kaiser To Handle Schaefer In Southeast

MINNEAPOLIS—Schaefer, Inc. has announced the appointment of Jess Kaiser as district factory representative in the states of Virginia, North and South Carolina, and West Virginia, and adjacent counties in Kentucky, Maryland, and Delaware bordering those states.

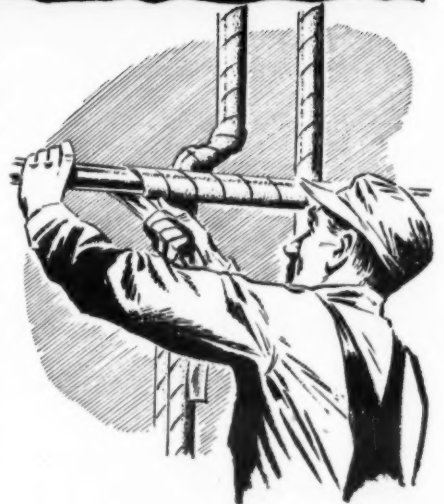
Kaiser formerly was special factory representative assigned to market development for Pak-A-Way home freezers.

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Residential Heat Pumps

Operating Data on Chicago Installation Indicates System Is More Practical In North Than Commonly Believed

CHICAGO—Residential heat pumps would seem decidedly practical even in crowded cities with colder climates despite the lack of well water, judging by such an installation here.

Complete operating data on a system serving a small home on Chicago's south side during the past winter which in terms of extremes was a severe one indicates several interesting conclusions:

1. Operating costs are only slightly higher than with conventional heating means.

2. Earth coils need not cover much area nor do they need to be deep (3 ft. might be enough; this one was 4 ft. deep).

3. Most of the heat flow in the earth is vertical, so earth coils could be placed in adjoining city lots without interfering with each other.

Winter's Operation Studied

These and other conclusions were reached after a complete winter's operation of the heat pump system in the home of Art Greltner on South Wabash Ave., the installation having been previously described in the Jan. 22, 1951, issue of AIR CONDITIONING & REFRIGERATION NEWS.

There is one important difference between the system serving this home and conventional heat pumps.

The latter use as their source of heat either water from a well or suitable source, coils in the earth, or the air. This installation uses a combination of earth and air coils with the system being so arranged that heat from the air coil is "recharged" into the earth under favorable conditions.

Duct Sizes Doubled

The air duct system in this home is conventional except that the areas of the ducts and grilles are doubled because the air volumes are doubled. The heating coil is the refrigerant condenser. The motor-compressor unit is a standard 5-hp. item. There are manual summer-winter change-over valves and the refrigerating system is a typical heat-pump hook-up in most respects. The evaporator is a simple double pipe chiller. The effects of sub-cooling are utilized to the extent that liquid refrigerant enters the expansion valve at 40 to 60° F.

The heat loss of the residence calculated in the regular manner with an 80° temperature difference is 56,370 B.t.u./hour or 705 B.t.u./degree hour. The capacity of the refrigerating system was variable but, based upon averages and the manufacturer's data corrected for the sub-cooling, it averaged about 57,000

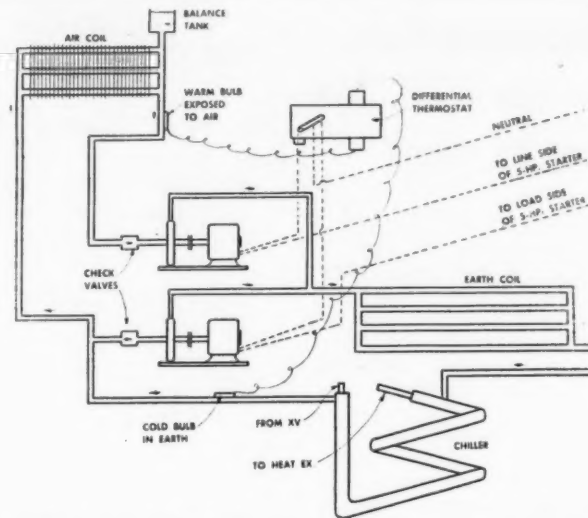
B.t.u./hour for the season.

The compressor operated 1,781.81 hours from Oct. 15, 1950 through May 3, 1951 and there were 6,373 degree days or 152,500 degree hours. Therefore the season heating load was about $1,781 \times 57,000 = 101,500,000$ B.t.u. This, divided by 152,500 degree hours, equals 665 B.t.u./deg. hour which is a reasonable check with the figure of 705 given above. The 665 figure is probably more realistic and the actual heat loss of the residence is therefore about 53,000 B.t.u./hour.

House Is 'Partly Insulated'

The residence is a one-story five-room structure with 8-in. brick walls with $\frac{1}{2}$ -in. insulating boards laid between the furring strips. The ceiling is insulated. Thus it may be classified as "partly insulated." The plan area is 965 sq. ft. Ceiling height is 8 ft. There is a full basement with a 7-ft. ceiling. Windows and doors are all double and total 245 sq. ft. Some would say the volume of the house is 9,150 cu. ft. plus the basement. The basement is not directly heated and went as low as 55° F. in mid-winter.

The temperature upstairs was never less than 73° F. day or night at the thermostat in the living room.



LAYOUT shows chief components of unusual "earth-recharging" system combining air and ground coils as the heat source for the year-round heat pump air conditioning system serving the new home of Art Greltner in Chicago.

In the evening, it was frequently set to 78° F., particularly in very cold weather when the walls were cold. The house was kept warmer than an average Chicago home.

The primary heat source is an atmospheric coil 8½ ft. long, 4½ ft. high, and 3 in. wide. It is the simplest type of flat, finned coil with aluminum fins on copper tubes. Inasmuch as the average wind velocity in Chicago in winter is over 900 f.p.m., it seemed unnecessary to complicate matters with a blower, motor, and ducts to obtain a lower velocity and get no benefit from the sun. Furthermore, there is no defrosting problem. The only time there was any slight sign of frost was on a few mild, humid days following a very cold spell.

Earth Coil Provides Secondary Heat Source

The secondary heat source is an earth coil consisting of 775 ft. of $\frac{3}{4}$ -in. o.d. copper tubing. Together with the headers and connecting piping, there is a total of about 900 ft. buried in the earth. This grid covers an area of 1,400 sq. ft. which would go into almost any Chicago back yard. The depth of the tubing below the surface averages about 4½ ft.

The pipes lie on the bed of pure blue-clay which was as smooth and dry and hard as a pavement when they were installed. The soil above the pipes is pure lake sand with a thin surface layer of black earth. Although this unusual combination would rarely be duplicated in practice, it is probably more or less average in its thermal characteristics. To install the pipes, a bulldozer made an excavation similar to a basement in one day, the coils were laid the next day, and then the bulldozer pushed the sand back over the pipes. It was relatively easy and an inexpensive process.

A ½-hp. centrifugal pump circulates a 50-50 solution of water and methyl alcohol through the earth coil, the atmospheric coil, and a chiller in series. When the air is cold, another ½-hp. pump circulates the solution through only the earth coil and chiller. These two pumps never operate at the same time. The system contains a total of about 37 gals. of solution. Thus it is adaptable as a heat source for any packaged heat pump of the water-to-air or water-to-water type.

In operation, the heating system

gets its heat from the atmosphere when the atmosphere is a better source than the earth. It gets its heat from the earth when the earth is a better heat source than the atmosphere. It gets its heat partly from the earth and partly from the atmosphere when that combination will provide the warmest solution to the chiller. When no heat is required and conditions are right, that is, when the air is warmer than the earth, atmospheric heat is transferred to the earth and stored there for future use. This last feature is why it is called the "Earth Recharging System" and why such a small earth-coil system at such a shallow depth is successful.

It would seem that such a complicated selection, interselection and proportioning between the earth and the atmosphere would involve a lot of complicated control equipment. However, all that is required is one simple catalog item; a differential type temperature control. This is better understood when it is pointed out that when the non-freeze solution comes out of the atmospheric coil warmer than when it went in, the atmospheric coil is performing a useful function. When the solution leaves the coil at the same temperature or colder than when it went in, the coil is not doing any good.

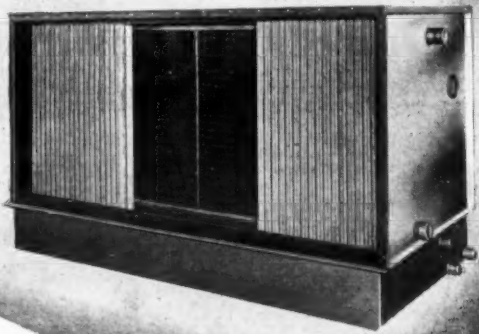
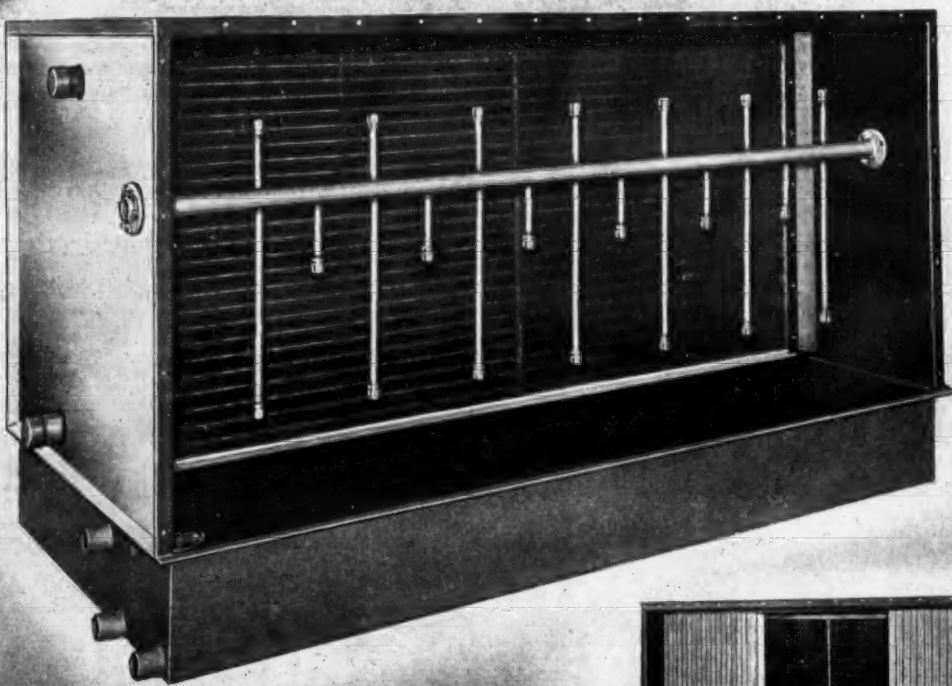
System Is Not Complicated

How complicated is a heat-pump heating system using the "earth-recharging principle?" To a refrigeration man it is best described as being identical to a self-contained, water-cooled air conditioner with a cooling tower. There is one expansion valve, two check valves, a change-over valve (or hand valves), and an earth coil system to be added. Of course the "cooling tower" is a simple flat, finned coil. There are no housing louvers or fan. An earth coil system covering a limited area at a shallow depth is not complicated or expensive.

A heat-pump job includes only the standard components used in commercial refrigeration and air conditioning work. The problems of repair and maintenance are also identical. The advent of a large number of heat-pump installations will certainly reduce the seasonal imbalance of the refrigeration and air conditioning industry.

From a degree day standpoint, the 1950-1951 winter in Chicago was not severe. There were 6,630 degree days (Continued on next page)

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Below Zero Days Gave Grueling Test--

(Continued from preceding page)
compared with a normal of 6,495. From the standpoint of extremes, however, it was a very cold winter and therefore can be considered as being a good year to use for heat-pump design purposes.

There were 14 days when the temperature went below zero compared with a normal of eight. It went to -5° F. on two days. The mean temperature was below zero on five days with one sequence of five days when the mean temperatures were -4°, -2°, 6°, -2°, -1°, respectively. There were 20 days in sequence when the temperature averaged 11° F. for the period. These were from Jan. 21 through Feb. 9. December was the coldest on record since 1876. November was the second coldest.

Low Cost Heat Source Found Nearly Constant

In spite of this, the temperature of the heat supply for the heat-pump, the alcohol solution, averaged about 28° F. during the five coldest winter months. It went down to 20° F. a few times but 19° F. was the very coldest ever observed. This approaches the ideal sought by the heat-pump engineer; that is, a constant temperature heat source which is available anywhere at a low cost. Of course well water is the truly ideal heat source from the standpoint of constant temperatures.

This heat-pump installation used electricity as given below during the 1950-1951 heating season:

	kwhr.
5-hp. compressor motor	8,650
1/2-hp. earth coil pump motor	590
1/2-hp. atmospheric coil pump motor	615
1/2-hp. blower motor	675
Total	10,530

Based upon a heating load of 101,500,000 B.t.u. for the season compared to the heat equivalent of the electricity used, the coefficients of performance (performance factors) for the heating season as a whole were:

Compressor motor only	3.42
Compressor motor and pump motors	3.01
All four motors	2.82

Other coefficients at a multitude of conditions can be calculated but these seem to be the only ones which have a real meaning. If the calculated heat loss of the residence were used, the above figure would be larger. With a forced air oil furnace, about 1,030 kwhr. would have been used by the oil burner and the blower motors. Thus 9,500 kwhr. is the amount of electricity which should be compared with oil. At 2 cents per kwhr., the cost was \$190. Thus, the operating cost of the heat pump was more, but not much more, than if oil had been burned.

This system has a maximum possible demand of 5.7 kw. Thus, there was 1,850 hours use of the maximum demand. This means that the annual load factor for heating was 21%. If 2,000 kwhr. were used for summer cooling, this figure would be increased to 25%. These are figures in which an electric utility company is interested.

Cost Could Be Lower

The operating cost for the year would have been considerably lower if it had been installed, as it should have been, with a thermostatic expansion valve with a pressure limit. Actually an automatic expansion valve was used with the result that no advantage could be taken of higher suction pressure when the temperature of the non-freeze solution circulated through the chiller increased. This varied as much as 16° in 24 hours when the atmos-

pheric coil operated. The valve had to be set for the lowest temperature and when the non-freeze solution through the chiller got warmer, the suction pressure at the compressor actually went down because the evaporator was "starved." What the difference in the use of electricity would have been is a guess but 10% is probably conservative. There are other deficiencies

in the job as installed which would be corrected in any future installation.

The residence was heated during the winter by heat which came from three sources in approximately equal quantities:

One third came from the atmosphere;
One third came from the earth;
One third came over the electric service wires.

In Chicago, even a small earth-coil system provides an adequate "sink" for summer air conditioning and the atmospheric coil is not necessary for the summer cycle. In warm climates, however, where the summer load exceeds the winter load, the "Earth Recharging System" could be used in reverse both functionally and mechanically. Heat would be removed from the earth at night and on cool days to assume a low refrigerant condensing pressure on the hot days when a maximum cooling effect is required.

System Seems Applicable In Even Colder Climates

In climates colder than Chicago, the system could be applied with almost the same efficiency as in Chicago if the earth coils were buried at a depth where the normal earth temperature is the same.

Two tables are attached showing the hours of operation of the compressor and of the atmospheric coil. Table II is by months and Table I is according to outdoor temperature. The compressor operated consistently longer on colder days. It also showed the typical operation of any heating plant by running less per degree on cold days than on mild days.

As the season progressed, it ran longer per degree day, although the change was not great. This is probably because the basement, which is a third of the calculated heat loss, became progressively colder in proportion to the outdoor temperature, thus increasing the basement duct losses and the floor loss from the living rooms above.

The atmospheric coil operated very little during November and December. These were both exceptionally cold and the earth was still warm. Therefore the solution from the earth was usually warmer than the air. The first 20 days of January were very mild and the earth was so cold that the atmospheric coil averaged 13 hours a day. In February, following the 20-day cold spell, the same thing happened. During March, the atmosphere was the principal source of heat and after the middle of April, use of the atmospheric coil was discontinued altogether because the earth itself supplied enough heat.

Best Operation of Coil

The atmospheric coil operated more hours and most effectively when the temperature was just above freezing. In fact, 45% of its operation was on days with a mean temperature between 30° F. and 40° F. On some of these days, condensed water would literally run from the coil. The coldest temperature at which it operated was once when the air was 19° and a full sun was shining on the coil.

Operation during the 20-day cold spell is shown at the bottom of Table I.

Chicago winter weather can be divided into four classifications according to the mean daily temperature:

Warm	above 40° F.
Average	21° F. thru 40° F.
Cold	1° F. thru 20° F.
Very cold	below 1° F.

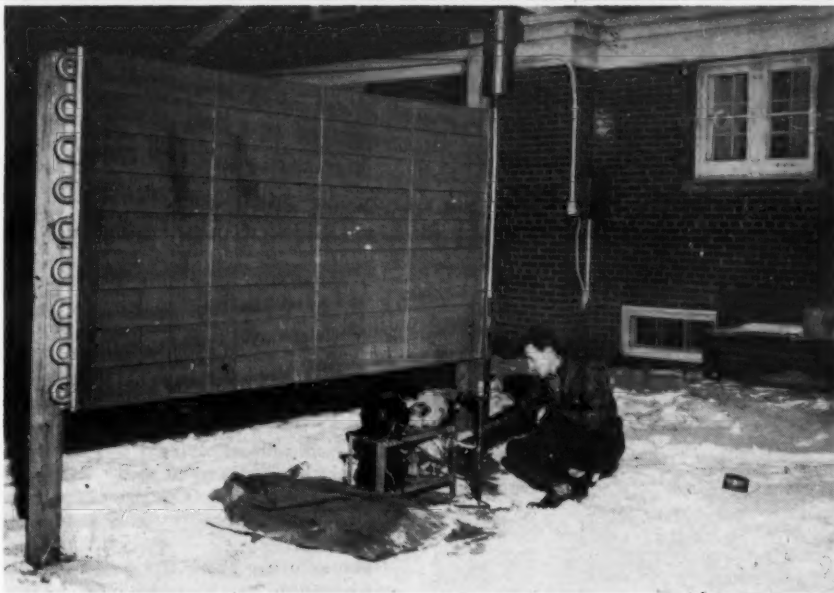
The number of days from Oct. 16, through May 31, 1951, divided according to the above classification and the hours operated by the compressor are tabulated below:

Mean Temperature	No. Days	%	Hours	%
Above 40° F.	93	40.8	331.92	18.7
21° F. to 40° F.	98	43.0	944.44	52.9
1° F. to 20° F.	32	14.0	416.42	23.4
Below 1° F.	5	2.2	88.83	5.0
Total	228	100.0	1,781.61	100.0

phic coil operated.

The valve had to be set for the lowest temperature and when the non-freeze solution through the chiller got warmer, the suction pressure at the compressor actually went down because the evaporator was "starved." What the difference in the use of electricity would have been is a guess but 10% is probably conservative. There are other deficiencies

The problem of motor loading, that is, at what heat-source temperature it should be fully loaded, is important in heat-pump design. This is particularly true when atmospheric air is the heat source. With the earth recharging system, this is simplified. From the middle of November to the middle of March, the temperature of the non-freeze solution entering the chiller was mostly in the neighbor-



AIR COIL located in back yard has dual function of supplying heat to condensing unit and storing excess heat in the earth through the ground coil.

hood of 28° F. Nearly 53% of the compressor running hours occurred during "average" weather.

Therefore it would appear logical to fully load the motor with 28° F. non-freeze solution entering the chiller. There would be a sacrifice of capacity in "warm" weather by limiting the suction pressure but this would occur less than 19% of the running hours and would not seriously affect the seasonal operating cost.

The extreme in the other direction, that is, with the non-freeze solution entering the chiller at 19° F. would involve a heating capacity reduction of about 15% and the motor loading would drop off about 7%. Inasmuch as "very cold" days involve only

about 5% of the compressor running time, this would not seriously affect the total operating cost very much either.

There was no frost problem with the atmospheric coil. On a few occasions, there was heavy icing of the return bends and a slight icing of the tubes but never was any real frost observed on the fins. Those few occasions were dark, humid days when the air was just above freezing and the preceding days had been very cold. The reason there is no frost accumulation is that the circulating non-freeze solution is never more than a few degrees colder than the air and is therefore usually higher than the dewpoint.

Coil Efficiency High

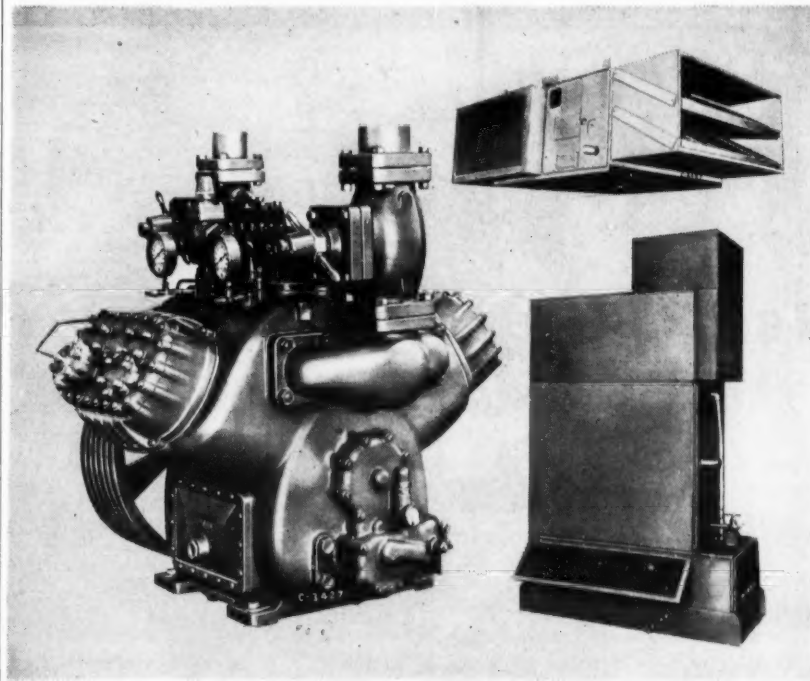
Calculated U factors for the atmospheric coil were high. They varied from 6 to 11 according to wind velocity, sun, and humidity, the latter being the most important factor. Sunshine did not make too much difference, although at one time at noon, with a full sun, the solution was leaving the coil warmer than the air. There was sunshine only about 17% of the total hours in December and January.

Earth temperatures were recorded weekly but are too voluminous to be given here. However, one feature was worthy of note. Temperatures at the edge of the earth coil grid were only 1 or 2° higher than at the center. This indicates that the majority of the heat flow to the earth coil was vertical from above and below; that there was not much from the sides. This would mean that if there were a row of heat-pump earth coils in adjacent city lots, they would not seriously affect one another.

Another feature of note was that the earth at the coil level in the very center of the grid within an inch or two of a pipe was never more than 11° colder than the normal earth temperature at the same depth. If it were not for the earth recharging feature, these desirable conditions would not have existed.

One thing that seemed obvious from a winter's observation of this installation was that anything like a steady-state condition rarely exists. Head pressures are low and suction pressures high at the start of a cycle. This gives one capacity. They are higher and lower respectively at the end of a cycle. This gives another

(Concluded on next page)



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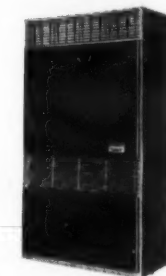
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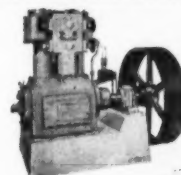
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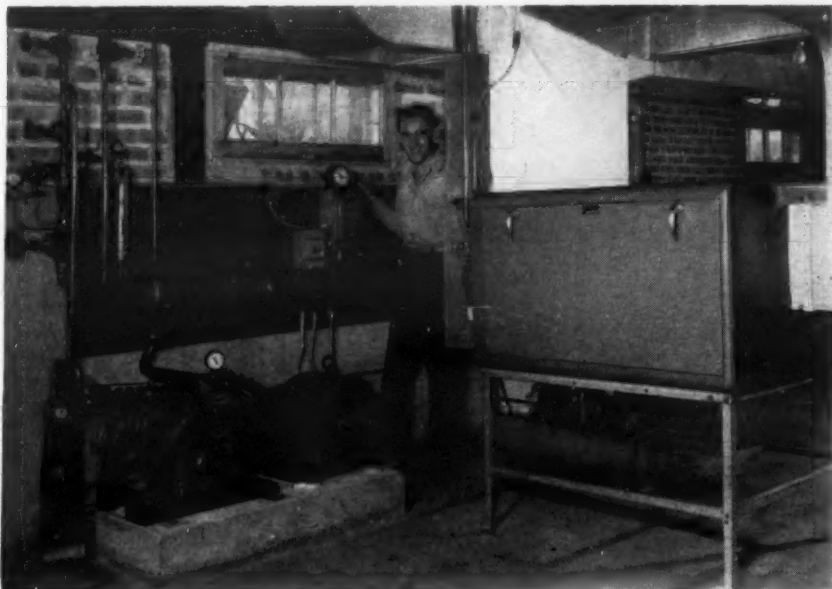
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A complete line of evaporative condensers and evaporative coolers



Also: a complete line of air units, wet and dry product coolers for both Freon "12" and ammonia, water coolers, valves, fittings, pumps

Take advantage of the completeness of the Worthington line and capitalize on Worthington's national advertising. Find out why there's more worth in Worthington by writing Worthington Pump and Machinery Corporation, Air Conditioning and Refrigeration Division, Harrison, N. J. A.I.R.



STANDARD refrigeration and air conditioning components such as would be employed in a package heat pump were neatly installed by Gretzner in the basement of his home.

Important Data Gained from Chicago System

(Concluded from preceding page) capacity. Cycles are short and infrequent in mild weather. They are long on cold days. Some days are cold, sunny, and dry. Some days are mild, dark, and humid. Some days the atmospheric coil operates 24 hours and the compressor 8 hours. Another day it may not operate at all while the compressor runs 16 hours.

This seems to make a mathematical approach utterly impractical. As the heat-pump business progresses, it will seemingly have to be designed

according to empirical formulas from experimental observations.

The nearest approach to a steady-state condition was that day when the solution was at its coldest late in January. It was 19° F. and the normal earth was 36½° F. The compressor had operated 17 hours at a refrigerating capacity of about 36,000 B.t.u. per hour and all of the heat had been taken from the earth that day and for five days previously.

Amount of Heat from Earth

Thus heat was being taken from

the earth at an average of about 25,500 B.t.u. per hour. With 900 ft. of buried pipe and a temperature difference of 17½°, the rate of heat removal could be stated as 1.6 B.t.u./hour/lineal foot/degree temp. diff. This figure was higher for most of the season but its use in design might be very misleading.

The exception was in the middle of December after an extended cold spell. The solution was 20° F. and the normal earth was 44°. The compressor had operated 13 hours at a refrigerating capacity of about 37,000 B.t.u. per hour. Thus heat was being taken from the earth at an average rate of about 20,000 B.t.u. per hour. With 900 ft. of buried pipe and a temperature difference of 24°, the rate of heat removal could be stated as 0.93 B.t.u./hour/lineal foot/degree temp. diff.

The solution from the earth did not again reach 20° F. until late in January. This phenomenon may have been because the earth around the pipes was not frozen in mid-December and was comparatively dry. By late January, this earth was below freezing from the surface to 2 ft. below the grid and was probably 100% saturated with frozen water as a result of thermal migration.

The nine coldest days of the winter, those with a mean temperature less than 5° F., had a degree day total of 589 and the compressor operated 149.58 hours. This means that the heating load was 558 B.t.u. per degree hour which is only 84% of the 665 B.t.u. per degree hour average for the season. That is, the compressor ran only 84% as much on these very cold days as it would be expected to run according to a degree day calculation. Of course a heat-pump installation is no different

Table I—Summary of Operation vs. Weather at Different Outdoor Temperatures

Oct. 16, 1950 Through May 31, 1951

Degree Day Level	Mean Temp. Av.	No. of Days	Degree Days	Compressor Hours		Air Coil Hours
				Total	Per Day	
0	..	24	0	13.41	0.56	7.50
1-4	63.2	5	9	7.76	1.55	12.83
5-9	57.6	13	96	33.34	2.56	33.83
10-14	52.8	10	122	37.41	3.74	70.16
15-19	48.1	20	339	111.57	5.58	190.58
20-24	43.1	21	461	128.43	6.11	194.42
25-29	38.0	24	648	199.41	8.30	332.91
30-34	33.1	32	1,021	297.03	9.26	246.34
35-39	28.0	22	816	217.43	9.85	98.68
40-44	22.8	20	844	230.57	11.53	91.83
45-49	18.0	11	517	135.92	12.33	15.42
50-54	13.3	10	517	125.75	12.58	1.50
55-59	8.8	7	394	94.00	13.43	0.58
60-64	3.0	4	248	60.75	15.19	0
65-69	-2.5	4	270	70.41	17.60	0
71	-6.0	1	71	18.42	18.42	0
Total		228	6,373*	1,781.61	7.80	1,296.58
Cold Spell	11.0	20	1,079	292.90	14.65	29.15

*Season Total was 6,630

Season Normal is 6,495

Omitted: 3 in July, 15 in Aug., 65 in Sept., 130 in Oct., 44 in June.

Table II—Summary of Operation vs. Weather by Months

Oct. 16, 1950 Through May 31, 1951

Month	Degree Days	Total	Compressor Hours		Air Coil Hours
			Per Deg. Day	Per Day	
Oct.	95	27.77	.292		29.66
Nov.	913	210.75	.231		87.60
Dec.	1,403	350.37	.250		79.24
Jan.	1,283	353.66	.275		257.49
Feb.	1,052	320.41	.304		300.64
Mar.	915	283.17	.309		334.83
Apr.	547	179.08	.327		207.12
May	165	56.40	.342		0
Total	6,373*	1,781.28	.280		1,296.58

*See Note under Table I.

in this respect from any fuel burning job, but it is interesting to note that an installation can be calculated for 100% operation on very cold days and still have a safety factor.

The 149.58 hours which the compressor operated during these nine coldest days is 69% of the time. The heat loss calculated according to standard methods was 56,370 B.t.u. per hour. Therefore it appears that this heat-pump installation would have heated a residence with a calculated heat loss of 81,500 B.t.u. per hour. This is stated merely as a matter of interest. Obviously no heating plant should be installed without any margin of safety.

Could Work at -30° F.

Another calculation shows that this installation could have heated this particular residence with 100% operation on a day with a mean temperature of -30° F.

On all except 10 days, a 3-hp. plant would have heated this particular residence to the temperature desired by the occupants. That is, the compressor operated more than 14½ hours only 10 days during the 1950-51 heating season. If all the components, heat-transfer surfaces, earth coil, duct, motors, etc., had been 40% smaller than they actually are, the family would not have been comfortably warm on these 10 days.

However, if one room, say the large bedroom, had been closed off during these limited periods of intense cold, the other rooms probably would have been comfortable. Within limits, this could be one approach to the problem of heat-pump capacity during extreme weather where first cost is important. After all, there are many homes where they have to do this during sub-zero weather with conventional methods of heating.

Coils Could Be 3 Ft. Deep

Normal earth temperature at a depth of 3 ft. is about 3° colder in mid-winter than at a depth of 4 ft. Therefore the non-freeze solution could be expected to be about 3° colder. A 3° lower refrigerant suction temperature would reduce the heating capacity of a refrigeration system only about 4%. However, the atmospheric coil would operate at a 3° lower outdoor air temperature which would partly offset this loss. In the interest of reducing excavating expense, earth coils buried to a depth of 3 ft. would seem to be a good economic compromise in regions with winters comparable to Chicago.

The greatest temperature difference between the non-freeze solution and the normal earth at 4½ ft. was 16°. The former was 19° and the latter 35°. If the area covered by the earth-coil grid and the lineal feet of earth coil were both reduced 30%, then the temperature difference between the non-freeze solution and the earth would probably be about 23°. Then the solution temperature would be about 12° or 7° colder than it actually was. A 7° lower refrigerant suction temperature would reduce

the heating capacity of a refrigerating system only about 12°. However, the atmospheric coil would operate at a 7° lower outdoor temperature which would substantially offset this loss.

The longest time the compressor operated during any day was 18.42 hours. If its capacity had been 4% plus 12% less, it would have operated 21.8 hours. Thus it appears that the system as installed would have heated the house if 543 ft. of ¾-in. o.d. tubing covering an area of 980 sq. ft. and buried 3 ft. deep had been used.

Denver Appliance Co. Moves

DENVER—Denver Appliance Co., which has been located at 16th St. and Cleveland for the past 10 years, moved to new quarters at the corner of Washington and East Colfax recently, it was announced by J. H. Huggins, co-owner-manager.

**new
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taking place**

in the **Acme** booths
at the
**7th ALL INDUSTRY
REFRIGERATION and
AIR CONDITIONING
EXPOSITION**

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Acme
INNOVATIONS**

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in **CHICAGO**
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Booths 244-245-246

a brand new idea in heat exchangers



A new, more compact design that features low suction pressure loss and saves you valuable space. You get the maximum gain from each degree of superheat. This new heat exchanger comes in eleven models with capacities from 3 to 200 tons, has a 13 to 1 ratio of gas side to liquid side surface, and gives you complete heat transfer and pressure drop data permitting economical selection for any system, at any temperature.

the whisper quiet **FLOW-COLD** convector (Remote Room Conditioners)



This unit is the answer to your home and office air conditioning needs. Easily adapted to wall, floor, or ceiling installations, its sturdy construction assures a long and efficient operating life.

see the streamlined **Acme** line

The Flow Cold Convector and the new heat exchanger are not the only new developments at ACME. The whole line has been streamlined and further refined by our expert engineers. With over 32 years experience and a constant eye to the future, they have made the ACME units famed for more efficient design and more dependable craftsmanship.



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Continuously Serving the Air Conditioning and Refrigeration Industry Since 1919

NEW **Cross-Fla**

HEAVY-DUTY
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THE MOST
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Now 100% improved—and 100% foolproof with new fiberglass depth filter for increased filtering capacity—and new MOLDED Remo-drying agent for increased moisture-absorbing capacity and improved efficiency. Also with silica gel. Capacities 1-1/2 thru 5 tons. Send for descriptive folder.

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**REFRIGERATOR
DOOR GASKETS
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Supplied by Wholesalers Everywhere

JARROW PRODUCTS

420 NO. LA SALLE ST., CHICAGO 10

Where Air Conditioning Was Installed In Detroit—1950, 6 Mos. 1951

Establishment	1950		1951 (First 6 Mos.)	
	No.	Hp.	No.	Hp.
Advertising agency	1	35	1	10
Air conditioning dealer	1	5	1	10
Airline ticket office	1	5	1	10
Appliance distributor	2	63	3	15
Appliance store	5	43	1	10
Architect	1	66	1	10
Bank	14	417½	7	403
Barber shop	7	25	1	10
Beauty operator school	2	23	1	10
Beauty parlor	10	50	2	12½
Blueprint room	1	5	1	10
Bowling alley	8	178	1	20
Brewery	2	8	1	10
Brick shop	1	5	1	10
Bus terminal	1	7½	1	10
Camera shop	2	8	1	10
Cartage office	1	7½	1	10
Church	1	5	1	10
Clinic	11	71	10	63½
Clothing store	11	102½	4	25
Club	4	177½	1	1
Confectionery	9	64	1	5
Dairy bar	3	13	2	10
Dance studio	1	5	1	10
Delicatessen	1	5	1	10
Dentist	3	11	1	3
Department store	8	1,020	2	160
Dime store	3	150	1	50
Doctor	7	34	2	15
Drafting room	2	35	1	3
Dress shop	13	63½	8	57
Drug manufacturing	3	57½	1	15
Drugstore	23	139	14	96
Dry goods store	3	9	1	10
Engineering office	1	5	1	7½
Factory offices	14	237	15	114½
Funeral home	16	111½	1	15
Fur store	3	15½	1	10
Furniture store	7	145	1	10
Gift shop	1	5	1	10
Haberdashery	5	33½	2	10
Hall	3	27½	1	10
Hardware store	1	5	1	10
Hospital	4	36	8	33
Hotel	8	102	3	40
Insurance office	1	5	2	300
Jewelry store	11	50½	1	5
Laboratory	4	29	4	30½
Library	2	35	2	30
Loan company	2	15	1	3
Lumber company office	1	5	1	10
Market	32	708	6	177½
Millinery shop	1	5	1	3
Mortgage office	1	5	1	20
Newspaper office	1	5	1	10
Night club	2	20	1	10
Office	82	1,192	41	372
Optical store	1	5	1	10
Photo-engraver	1	11	1	10
Photo studio	3	11	1	10
Plumbing contractors	3	18	1	10
Pool hall	1	5	1	10
Printer	3	93½	1	65
Radio studio	1	3	1	10
Real estate office	2	12	3	8
Refrigeration parts wholesaler	1	10	1	10
Residence	7	21	3	13½
Restaurant	93	555½	24	171
Sale room, automobile	12	136½	4	55
Shoe store	7	51½	5	56
Stock broker	2	65	2	23
Store	53	450½	5	36
Tailor	1	5	1	10
Tavern	82	520	17	97
Theater	8	310	1	7½
Tire store	1	8	1	10
Tobacco wholesaler	1	10	1	10
Toys shop	3	9	1	10
Trunk company	1	225	1	10
Union hall	1	120	1	10
Utility office	6	24	1	10
Veterinarian	1	5	1	10
Warehouse	1	7½	1	10
Total	660	8,378	221	2,772

6 Mos. Air Conditioning Sales Show Slight Lag; 221 Establishments Installed Units

DETROIT—Air conditioning installations were made in 221 different establishments here during the first six months of 1951, according to a study made by AIR CONDITIONING & REFRIGERATION NEWS of permits issued by the city's Department of Buildings and Safety Engineering.

In tabular form, the data shows that these installations totaled 2,772 hp. installed in 48 different categories in the half-year period. The table also gives similar data for the entire 12 months of 1950, permitting some basis of comparison between the two periods.

In 1951, "offices" were the leading purchasers of air conditioning during the first six months, installations having gone into 41 different offices to account for 372 hp. To these figures one might also add the single "engineering office" with 7½ hp.; 15 "factory offices" with 114½ hp.; two "insurance offices" with 300 hp.; one "mortgage office" with 20 hp.; three "real estate offices" with 8 hp.; and a "utility office" with 10 hp.

Restaurants continue to be an important source of prospective buyers of air conditioning, 24 having installed systems in the first half of this year with a total of 171 hp.

Taverns, too, are likely purchasers, it would be indicated by the 17 who bought in the first six months. Fourteen drugstores and 10 clinics, eight hospitals, seven banks, and six food markets were also among the leaders.

In general, air conditioning sales this year have been running behind the record-breaking figures chalked up in 1950. Although a true comparison cannot be made, of course, until 1951 is completed, the installations in the first six months are only a third of those put in during all of 1950. Considering the somewhat seasonal nature of the business, one might expect more than half of the year's installations to be in by the end of June.

This percentage has been bettered, however, in some categories in Detroit this year. Ten clinics, for example, acquired air conditioning in the first six months, compared with 11 in all of 1950. Two dairy bars were air conditioned in six months of this year, three in all of 1950; 15 factory offices in six months this year, 14 in 12 months last year; eight hospital jobs this year, four in 1950; four laboratories in six months compared with four in 12 months last year.

Detroit Air Filter Co.

Sold to Air-Maze Corp.

CLEVELAND — Air-Maze Corp. here has purchased Detroit Air Filter Co. of Woodstock, Ill., it was announced here.

Manufacture of "Detroit," "Arco," and "Dustay" filters will be continued at Woodstock. The filters are of the "throwaway" type and incorporate "wick action."

Pittsburgh Plate Glass To Begin Fiber Glass Production Soon

PITTSBURGH — Pittsburgh Plate Glass Co. will enter the fiber glass production field in the near future, according to Richard B. Tucker, executive vice president of the firm. Formation of a separate development and production unit to be known as the Fiber Glass division is now in process.

Two types of fiber glass, strand fiber and super-fine fiber, will be manufactured under the licensing agreement with Owens-Corning Fiberglas Corp., Tucker stated.

The new division will be headed by J. Hervey Sherts who will serve as general manager. Sherts has been associated with Pittsburgh Plate Glass Co. since 1928 and has been director of the firm's product development department since 1939.

"Entry of Pittsburgh Plate Glass Co. in the fiber glass production field is a normal extension of the firm's natural activities," Tucker further asserted.

"In the new field the company can utilize its 68-years of technological background in continuous glass mass production and product development experience."

Swanson Buys Wheeler Supply

ADA, Okla.—The Wheeler Supply Co., refrigeration concern, has been sold to Lee Swanson by Earl Wheeler, it was announced here recently.



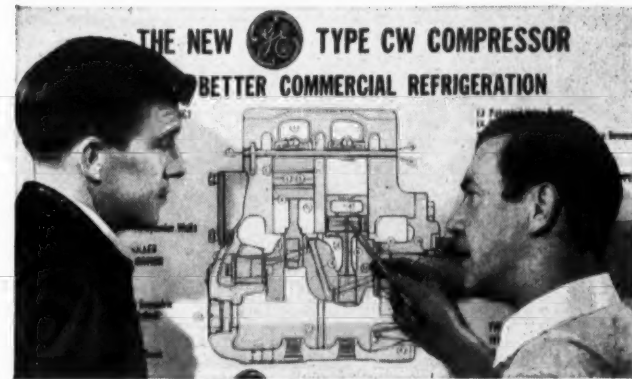
4 WAYS G-E WHOLESALERS HELP YOUR BUSINESS



ONE-STOP SERVICE. You get efficient, over-the-counter service on all refrigeration needs—G-E condensing units, renewal parts as well as refrigerant gas, controls, tubing, valves, tools. No need to make several calls...one stop and you're in business.



AMPLE STOCKS. You'll find G-E open-type units from ¼ to 10 hp, G-E hermetics from ¼ to ½ hp, G-E compressor bodies from ¼ to 10 hp, and a full line of renewal parts. Let G-E's famous name and performance record help you sell your customers.



EXPERIENCE AT YOUR CALL. Ask your G-E Parts Depot counter-man to help solve those pesky installation problems. He knows how to select the right units for the job, where to look for trouble-spots in an installation, what controls are needed.



TIME SAVED. No longer need you and your customers suffer that exasperating wait for "factory delivery." Anywhere in the U. S., your G-E Parts Depot is usually as close as an easy ride in your repair truck, at most, within one day's express travel.

Write for **FREE** data!

You can put your confidence in—

GENERAL ELECTRIC

General Electric Company
Air Conditioning Division, Sec. AC-15
Bloomfield, New Jersey

Tell me the location of the G-E Parts Depot nearest me ☐. Please send me literature on G-E Open Units ☐ G-E Hermetics ☐ G-E Renewal Parts ☐

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ADDRESS.....

CITY.....ZONE.....STATE.....



GLASS-FRONTED, refrigerated display case, installed during the recent modernization of the W. B. Pipkin drugstore, Waco, Tex., has been responsible for a marked increase in biologicals sold from the store's veterinary supply department.

Texas Drugstore Modernizes

Refrigerated Display Case Doubles Sales In Veterinary Supply Dept.

WACO, Tex.—Sales of biologicals intended for control of animal diseases have more than doubled in the veterinary supply department of the W. B. Pipkin drugstore here, with installation of a Selb display case.

The glass-fronted refrigerated case was part of a complete modernization of the veterinary supply department, which incorporates bright, pastel colors, blonde hardwood fixtures, a special service for farmers and stockmen in animal husbandry, etc.

The 4-tier display case has ample space for such biological drugs as

vaccines, serums, anti-toxins, and other inoculants. No longer is it necessary for the salesperson to open up the standard type of refrigerator in order for the customer to make a selection.

Now, the rancher-customer merely points out the package which he wants, and this can be retrieved through a small, separate door, at the height of each shelf in the rear. The Pipkin drugstore has doubled its inventory of animal husbandry supplies. The refrigerated case made possible the increase in sales.

Bridgman, Bargeman Join Bush Chicago Office Staff

WEST HARTFORD, Conn.—Bush Mfg. Co. has announced the appointment of Clark Bridgman and Harry Bargeman to the staff of its Chicago office.

Bridgman and Bargeman were formerly with Clark Bridgman Co., factory representative.

The company also announced that Ben Prather is now in the Chicago office as application engineer under the direction of J. K. Campbell, district manager.

Wood Leppard Named as Worthington Distributor

HOUSTON, Tex.—Everett T. Wood, president of Wood Leppard Air Conditioning Co. here, has announced a recently signed distributorship agreement with Worthington Pump & Machinery Corp. to handle its air conditioning and refrigeration equipment.

Wood Leppard has been supplying commercial, industrial, and residential air conditioning equipment to the south Texas area since 1946.

Arthur Briggs Dies on Hunting Trip, Was Sherer Distributor

PORTLAND, Me.—Arthur F. Briggs, president of A. F. Briggs Co., died while on a hunting trip in New Brunswick, Canada, Oct. 13. The Briggs organization has been the Maine distributor for Sherer commercial refrigerators since 1935.

SLANTS on Service

"Slants on Service" is a new "package" devised by the NEWS to meet the needs of its busy readers in the service and contracting business. These helpful hints and suggestions for improved service methods and shortcuts have been assembled in capsule form.

Right Tools Needed for Refrigerator Refinishing

Refrigerator cabinet refinishing requires a relatively small amount of tools and materials, but certain items are essential for a good job.

Principal items needed include: a spray painting outfit; sandpaper and refinishing materials; phemerol germicide for disinfecting the cabinet interior; primer surfacer, thinner, rubbing compound, metal conditioner (for rust); porcelain cleaner, tray and evaporator waxes, porcelain patch kit; steel wool; and possibly aluminum paints for shelving.

Du Pont offers a number of products that are suitable for use in cabinet refinishing and reconditioning including the Prep-Sol Du Pont 3980 cleaner; Du Pont 233-1911 primer surfacer; Duco white lacquer 236-1328; Duco thinner 37-17; Du Pont VZ 4081 white rubbing compound.

Oil Added to SO₂ System By Using Revamped Drier

Sid Bloom passes along a suggestion via the *Headpressure*, newsletter of the District of Columbia RSES chapter.

"I had a Coldsport refrigerator unit that I had just replaced the seal in the compressor. After assembling the unit and recharging with SO₂, I found that the unit would not pump due to lack of oil. Normally I would have to evacuate the system to add oil. However, this is what I did:

"I took an old drier and removed the insides. Drilled a hole in the side and sweated a union fitting in it, so when I poured oil in the top, it would allow the air to come out. I filled the drier with oil and inserted it between the high and low sides of the system. By running the machine, the slight head pressure forced the oil into the low side and the machine began pumping again."

'Miracle' Cement Permits Quick Mounting of Units

Simple way to mount commercial condensing units and at the same time provide a vibration-absorbing installation has been devised by Philip Conrad of Simmons & Conrad, contractor in Hatboro, Pa.

First cut four pieces of live rubber (approximately 1/2 in. thick) into shapes approximately the same size as the mounting legs of the unit. Determine where the legs will rest on the concrete base and then cement the pieces of rubber to the concrete with Miracle cement.

Next, apply cement as directed on the label to the pieces of rubber and the legs of the unit and move the condensing unit into place.

This provides a firm grip, and the rubber will not transmit vibration. Surprising as it may seem, it will require tremendous leverage to break the unit loose from its rubber mounting.

The whole operation can be done very quickly, especially when compared to drilling concrete or pre-setting studs.

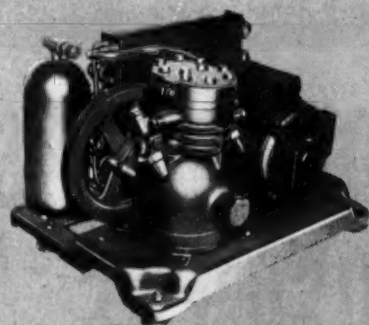
Lye Solution Neutralizes SO₂ In Discharging Unit

To keep sulphur dioxide from getting into the vacuum pump when pumping air and refrigerant from an old unit, run the line through a 5% (by weight) solution of lye in water and a refrigerant drier before going into the vacuum pump, advises John Bopp, head of Ansul's refrigeration research.

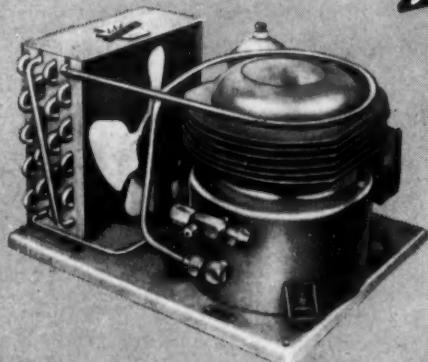
The lye solution should be in a bottle or cylinder equipped with an inlet tube extending to the bottom of the lye solution. It takes about 2 lbs. of lye to neutralize 1 lb. of SO₂. The drier prevents moisture or the lye solution from getting into the vacuum pump.

WHY WAIT?

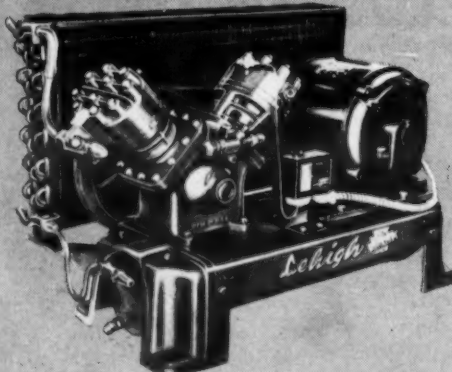
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PACKAGED TYPE UNITS FOR F12 & F22. 1/4 thru 1/2 HP.



HERMETIC UNITS—LOW TORQUE AND CAPACITOR TYPES. 1/4 thru 1/2 HP.



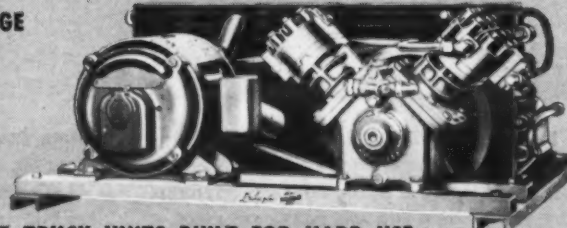
HEAVY DUTY UNITS—WIDE RANGE OF MODELS. 1/2 thru 3 HP.



Ask for it—and the Lehigh dealer can always put on a winning 'show'. Whether it's a replacement job, units for that new supermarket, or a modern PAY-LOAD unit for a refrigerated truck, the Lehigh dealer can always deliver • Lehigh's progressive engineering, precision construction and reliable ASRE Ratings make every day "Show Day" for the commercial refrigeration dealer!

A COMPLETE LINE 1/4 HP thru 5 HP

- Packaged Units for small mounting dimensions.
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- Truck Units for hold-over operation • All-Electric Truck Units for on-and-off-road operation • Bare Compressors • Water Cooled Condensers
- Write for complete catalog.



"PAY-LOAD" TRUCK UNITS BUILT FOR HARD USE. FOR BODY BUILDERS, FLEET OWNERS, ETC.



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MANUFACTURING CO.

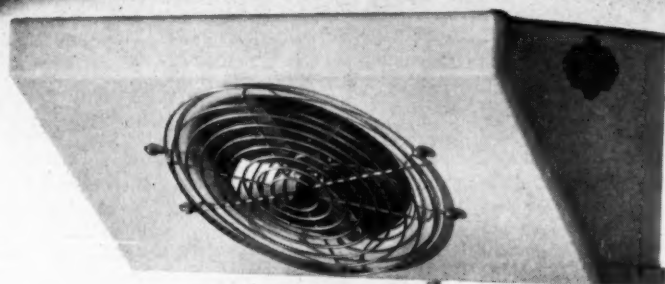
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BETZ CEILING UNITS



Only 8 7/8 inches high

Designed Specifically for Reach-Ins

Refrigerated air is exhausted against the back wall and travels in a positive path to the bottom. There is no short-cycling, door sweating or refrigeration losses.

MODEL NO.	BTU AT 1" TD	CFM	SURFACE SQ. FT.	DIMENSIONS		
				H	W	D
100-C	100	180	36.87	8 7/8"	18 1/2"	13 3/4"
130-C	130	250	53.11	8 7/8"	24 1/2"	13 3/4"
190-C	190	310	69.23	8 7/8"	30 1/2"	13 3/4"
260-C	260	415	90.88	8 7/8"	38 1/8"	13 3/4"

See Them at Your Wholesalers

BETZ CORPORATION

HAMMOND • INDIANA

Servicing Hermetics In the Field

Replacing Motor Compressors In the Field (1)

By Arne Perttola, Owner and Manager
Brighton Hermetic Service, Detroit

Replacing a hermetic motor-compressor assembly in the field can lead to a multitude of troubles even if the serviceman is an expert.

The reason the motor-compressor is being replaced is that it has become defective either mechanically or electrically. A very large majority of the causes for a defective unit are due to the electrical system, which usually means a burned-out stator. Many "conventional unit" servicemen have seen the condition of a burned-out motor used on an open system. A hermetic motor, however, will make more of a mess because the oil and refrigerant inside the dome may break down due to the excessive heat created when the stator burns.

The hermetic unit may operate several hours under the excessive heat condition before it actually stalls. While operating under this condition it is circulating broken down oil and gas throughout the system.

Now we know that all this foreign matter must be removed from the system before another motor-compressor assembly can be installed. Blowing out or cleaning the system with the refrigerator located in a small kitchen will be quite difficult, since, for example, all connections in the evaporator and condenser are usually silver soldered.

Let us suppose, though, that the serviceman has mastered the problem of cleaning the system on the job, and he installs the compressor. His next problem is to dehydrate and evacuate the system prior to recharging. The space to install a drier is limited, so he'll probably add a chemical, making a rough guess as to the quantity he should use.

Then a portable vacuum pump will have to be employed to remove all the air from the system.

Next comes the matter of charging the system. Inasmuch as almost all hermetic systems require quite a critical charge varying (according to make and model) from a few ounces to as much as 3 lbs., a special drum with the exact charge would have to be carried by the serviceman. You can imagine trying to put 6 oz. of refrigerant, no more and no less, in a 10-lb. drum.

And then if the drum or the hermetic system is charged in such a manner that some refrigerant is left in the charging lines after they're disconnected, the accuracy of the charge will be off considerably. Thus, the serviceman would have to wait until the unit had cycled several times to make sure the charge is correct. An over-charge or under-charge of refrigerant could make the unit burn out once again.

(To Be Continued)

air cooling equipment, all kinds of associated mechanical and automatic controls, testing and recording instruments, electric motors, copper and steel metal tubing, sheets and stamping, installation and service tools, equipment and supplies, refrigerant, lubricating oils and chemicals.

It is estimated that the total annual value of retail sales is between six and seven hundred million dollars. This is the figure for retail sales of all air conditioning and refrigeration products. There are approximately 10,000 contractors in the country and approximately 25,000 service mechanics. There are about 100 to 150 recognized wholesaler-jobbers and there may be about 200 manufacturers. Many of the manufacturers are not strictly manufacturers of refrigeration and air conditioning equipment. All of the quoted figures are approximate.

Manufacturers are represented in the industry by the Air Conditioning and Refrigerating Machinery Association, the Refrigeration Equipment and Manufacturers Association, the wholesaler-jobbers are represented by the Refrigeration Equipment Wholesalers Association, the contractors are represented by Refrigeration & Air Conditioning Contractors Association, Inc., the refrigeration engineers are represented by the American Society of Refrigeration Engineers, the commercial fixture dealers are represented by the National Commercial Refrigerator Sales Association.

Some of the acts, practices and methods of unfair competition are as follows:

There are large corporations in the refrigeration industry who use refrigeration merely as a tool for their main business. For example, ice cream manufacturers will buy refrigeration equipment, will service and install such equipment below cost or for no cost, merely to sell their ice cream and dairy products.

They have a separate refrigeration company set up individually and apart from the parent company, but acting as full refrigeration contractors. The practice of this seller is to sell below cost with the intent and with the effect of injuring a competitor and may substantially lessen competition and tend to create a monopoly or unreasonable restraint of trade.

The quantity of frozen food merchandising cabinets sold in large cities is practically nil because of the tie-in sales by frozen food sellers.

Strange as it may seem, ice cream manufacturers have stated privately that they are desirous of discontinuing such practices, but that since all other ice cream manufacturers join in this activity, they are forced to continue these objectionable practices. (See Oct. 8, 1951 issue, page 1, *Air Conditioning & Refrigeration News*).

They admit that this business is a loss to them, and is used as loss-leaders.

The same is true for soft-drink manufacturers who give away (or sell below cost) beverage coolers.

In the many regulated states, the opposite is true for the sale of beer. State Alcohol Boards have declared it to be an unfair trade practice for a brewer to install, service or maintain beer cooling equipment at or below cost. Thus can be seen that the practice is considered an evil in one part of the industry.

As an example of such unfair conduct, the following is a very frequent procedure:

A confectionery store buying ice cream from a certain manufacturer, not only receives his freezer free of charge, but the same refrigeration equipment is also attached to his bain-marie, his salad tray, his display case and his reach-in refrigerator. Obviously, the latter items are not part of the sale of ice cream. In many instances where bakeries sell ice cream, the ice cream companies also connect up the whipped cream display case and their food freezer as well as their ice cream cabinets.

The following are a few examples of what is occurring in this business:

About 6 months ago, Delicatessen Store, made advance reservations with a refrigeration contractor to rearrange their refrigeration equipment. The work consisted of moving meat and delicatessen cases and reconnecting them in a new location. Two days before the work was to have been done, the owner of the delicatessen called the refrigeration contractor and cancelled the order, stating that a certain dairy was doing the work for him without charge. The contractor called the dairy to explain the situation and the dairy thereupon removed itself from the picture. However, the dairy supplied the customer with a soda fountain free of charge.

On May 3, 1951, a refrigeration contractor was called to a grocery store. Grocery, a customer of his for some 12 years and found that Dairy's serviceman had installed a "Freon" TE valve on a methyl chloride job in a reach-in and had mixed methyl and "Freon" in the systems. After 6 or 7 months of poor operation, Grocery decided to have the refrigeration contractor return to straighten out the job.

On May 4, 1951 a refrigeration contractor received a call from Grocery Store. When he arrived at the store he found a new room thermostat installed on a 6-ft. double-duty McCall display case by the owner of Dairy Ice Cream Co. The grocer had been charged the wholesale price of \$12.50 for a White-Rodgers 951 Room Thermostat, completely installed by the Dairy Ice Cream Co., who claimed that the pressure control was no good. The refrigeration contractor also discovered that the thermal expansion valve was worthless, and that there was a leak on the evaporator coils. Also, the job was found to be short of refrigerant and the new thermostat did not correct the trouble.

The Dairy Ice Cream Co., had not only engaged in unfair practices by selling the user a thermostat at wholesale prices, but the contractor does not believe the Dairy bothered to collect the State's Sales and Use Tax on this item.

In addition, the Dairy's serviceman had wired this job from the condensing unit in the basement with an 18-2 rubber-covered wire which ran through the floor of the store without protection above the floor which is in direct violation of the Electrical Code of the National Board of Fire Underwriters, and also in violation of the Electrical Code of the City of Detroit, which is patterned after the national code.

The Dairy also did this work without first obtaining a license or permit. Also, when the refrigeration contractor was called to service a freezer, he found that the freezer was a used ice cream cabinet, given to the owner of the Diner for meat storage by the Dairy Ice Cream Co., who also supplied the parts gratis to repair this cabinet—with the single exception of payment for the refrigerant and labor involved.

Company has been selling carloads of merchandise (cases and coolers) to an associated grocers wholesale outlet who in turn supply their members with cases and coolers at wholesale. (The names and addresses and other pertinent details will be submitted upon request.)

Wherefore, petitioner requests that the Commission establish Trade Practice Rules in the interest of the industry and the purchasing public.

RACCA Asks FTC for Rules for Industry--

(Concluded from Page 1)

respect to beer, it is pointed out that state control boards have declared it to be an unfair practice for a brewer to install, service, or maintain beer cooling equipment at or below cost, and the petition says that "thus it can be seen that the practice is considered an evil in one part of the industry."

Nathan Edelstein of the firm of Schneider & Edelstein, the RACCA legal counsel, reports that after a personal conference with the chief of the Bureau of Industrial Cooperation, Division of Trade Practice Conferences of the FTC, the chief seemed sympathetic to the need for trade practice rules and outlined the necessary prerequisites for submitting a petition and asked that such petition be submitted. He suggested that the cooperation of other segments of the industry be sought in the promulgation and formulation of trade practice rules.

The FTC official stated that although trade practice rules in the

industry were not as yet established, any violation of the Fair Trade Act or other Federal laws dealing with unfair competition would be vigorously prosecuted by the Enforcement Section of FTC.

He referred to Section 5 of the Federal Trade Commission Act, which covers "Unfair Methods of Competition and Unfair Acts or Unfair Practices"; section 2 of the Clayton Anti-Trust Act, covering "Price Discrimination"; and section 3 of the Clayton Anti-Trust Act covering "Exclusive Dealing."

It was explained that specific instances of unfair trade practices are needed before any action can be taken, and RACCA headquarters are asking that any contractor with a knowledge of such violation submit the facts to the Executive Vice President, Refrigeration & Air Conditioning Contractors Association, Inc., 154 Nassau St., New York 38, N. Y.

Text of Petition

To the Federal Trade Commission, Bureau of Industry Cooperation, Division of Trade Practice Conferences:

The Refrigeration & Air Conditioning Contractors Association, Inc. is submitting this application for the promulgation of trade practice rules in the interest of the industry and the purchasing public. Its intent is to provide for the prevention of unfair methods of competition or practice or other illegal trade practices. Its purpose also is to foster and promote fair competitive conditions and establish standard ethical business practices in harmony with public policy.

The Refrigeration and Air Conditioning Industry exists on many levels. At the top, there is the manufacturer and the next is the wholesaler, then the jobber and then the contractor. The manufacturer, in the majority of cases, deals through the middleman and sometimes through the contractor or dealer directly. In some instances, the manufacturer is also the contractor, installer and the maintenance company.

The wholesaler or jobber does not, as a rule, do any contracting. They merely sell to contractors and/or dealers. The contractor buys the equipment from said manufacturer or the wholesaler or jobber, sells to the consumer and installs, services and maintains refrigeration and air conditioning equipment for the consumer. Roughly, refrigeration and air conditioning may be divided into three categories:

In domestic refrigeration—All machines up to and including 1/4-hp. machines.

In commercial refrigeration—From 1/4 to 5 hp.

In industrial refrigeration—All over that.

The products involved are household refrigerators, including cabinets, defrosting trays, wire baskets, etc. Commercial refrigeration equipment consists of condensing units, evaporators, ice cream and soda fountains, dairy equipment, refrigerator locker storage equipment, liquid cooling equipment, air conditioning, condensing units, evaporated condensers, water towers, heat transfer equipment, beer cooling equipment, ventilating and

displays MORE BTC sells MORE

the handsome new Glass Front display case



Better make space in your showroom for this smart-looking, new BTC Glass Front Display Case! It's a profitable cabinet every retailer will want because it displays frozen foods better—sells them faster.

- **FLUORESCENT-LIGHTED INTERIOR . . .**
shows off foods stored within—holds a full 10 cubic feet in only 53" x 30" floor space!
- **EXCLUSIVE "HIDE-A-WAY" LID . . .**
is self-contained, fully insulated—slides under rear deck when cabinet is opened!
- **PLUS THESE BTC FEATURES . . .**
Quadruple Thermopane glass front—4 compartments—full-color, 3-dimensional picture—gleaming white enamel finish—all-steel bonderized cabinet—1/2 H.P. hermetic compressor—vapor-sealed insulation—lateral plate evaporators—5-year compressor warranty.

Learn the full facts on this profitable new cabinet—write Brewer-Titchener today! Ask for a Glass-Front Display Case Bulletin.

MODEL SS-5310-D with superstructure.
Also available without superstructure.

DISPLAY **BTC** CASES

The **BREWER-TITCHENER**
Corporation
BINGHAMTON • NEW YORK

Visit Booth 302-304 ALL-INDUSTRY EXP., Navy Pier, Chicago, Nov. 5 to 8

LOOK to LARKIN

for Quality

HIGH AND LOW BOY MODELS

LARKIN WALL HUMI-TEMP

Quality speaks a language everyone understands. Wholesalers, dealers, and users alike know that the name Larkin means quality—of workmanship, materials, and performance.

Manufacturers of the original Cross-Fin Coil—Humi-Temp Units—Evaporative and Air Cooled Condensers—Air Conditioning Units and Coils—Direct Expansion Water Coolers—Steel Vacuum Pumps—Heat Exchangers.

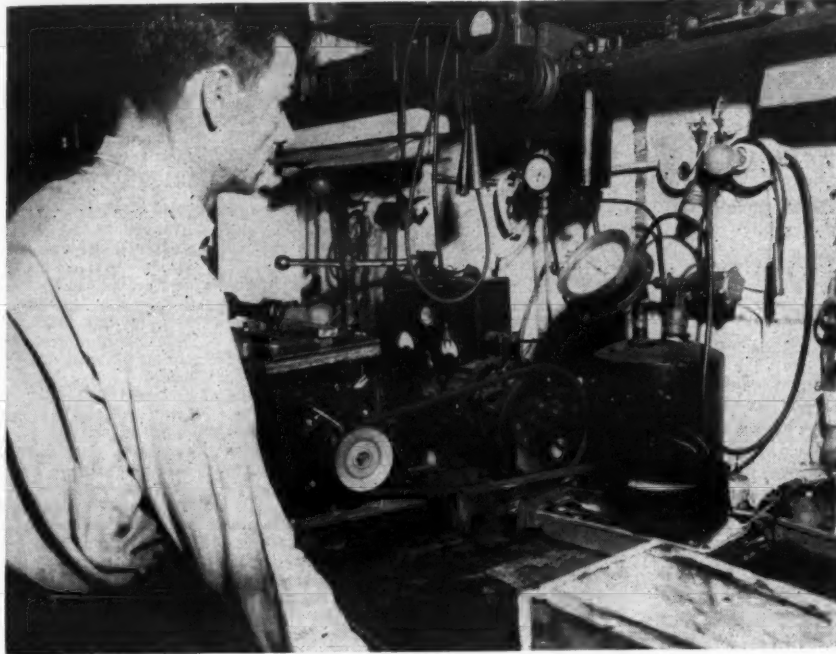
WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

819 MEMORIAL DR., S.E. • ATLANTA, GA.



AIR CONDITIONING equipment of all types goes through the completely equipped shop of M. & R. Engineering Co. for repairs or reconditioning.



MOTORS are tested by determining how much of a vacuum they can make a compressor of known efficiency pull.



PARTNERS "Ted" Reina and Emil J. Merenda, whose initials are the "M. & R." of the Brooklyn air conditioning firm, check a map showing some recent installations.

'Sales Dept. Can Make or Break Any Organization'

Ted Reina, E. J. Merenda Tell How Careful Planning, Supervision Have Paid Off In Their Air Conditioning Sales and Service Firm

By C. Dale Mericle

BROOKLYN—"The sales department will make or break any organization and thus deserves a lot of planning and supervision," declares T. A. Reina, who with E. J. Merenda has been operating an air conditioning sales and service firm here since 1928.

Known as M. & R. Engineering Co., the firm has an enviable sales record and has long had a fine reputation in the service field also, having originally concentrated on domestic work. In recent years, however, the company has called itself "the world's largest Chrysler Airtemp distributor," and can point to an imposing list of air conditioning installations in support of its claim.

Adequate training and careful supervision are important keys in handling a crew of salesmen if they're going to produce results consistently, according to Reina, who himself con-

centrates on directing sales and overall activities of M. & R. while his partner Merenda specializes on engineering.

"We have a crew of 10 salesmen and two supervisors," Reina explains. "Thus each salesman receives close personal guidance because each supervisor has no more than five men under him. This also permits him to spend one day a week with each man. A salesman doesn't know until he starts out in the morning that the supervisor is coming with him that day. This helps to keep all the men on their toes all the time."

"There is daily contact between the salesmen and the supervisors. The supervisor spends at least 15 minutes every morning with each man, checking up on his prospects for the day as well as the previous day's activities."

To help in the latter, the firm em-

plays a daily report form which each salesman has to fill out. This form is mimeographed on an 8½ by 11-in. sheet and provides space for the salesman's name, the date, temperature, humidity, the names of the firms called on, hour of call, elapsed time of call, and a check list on each call so the salesman can indicate whether it was one of the following: Collection, lead, canvas (new), follow up, got an interview, or service contact.

Alongside are the "results" of the call: made survey, presented proposal, got order, or complaint.

There is enough space on each report sheet to record data on 24 calls, the first one of which has to be made by 9:30 a.m. (the salesmen being required to report in at 8:30 every morning).

Daily Reports Reviewed

Besides going over the daily report as filled out by each man, the sales supervisors also prepare a "re-cap" on all the reports for the week. These are then reviewed and discussed at the regular sales training meeting which is held one night a week.

"This fits in nicely with the regular sales training program we conduct," Reina explains. "At the beginning of the season we hold sales meetings three nights a week during which we try to put across the product story as well as review sales methods and techniques. What we do is to give them a complete course in salesmanship."

As for the source of air conditioning sales, the best come from recommendations of users, according to Reina, who adds that the second best source is canvassing, while direct mail advertising is third.

"By comparison, direct mail is extremely costly, but it does bring some results. However, we use it primarily to keep our name before the public."

Active In Civic Affairs

Incidentally, Reina also helps publicize the firm's name through his active participation in Brooklyn's civic affairs although he is primarily motivated by a sincere desire to contribute to community life. Once a month, for example, he provides a free show at one of the local movie houses for 2,500 kids from 4 to 14, who now call him "Uncle Ted." He is active in Boy Scout affairs, the Flatbush Boys Club, the local Chamber of Commerce, (of which he is vice president), and other organizations.

In addition, he is currently national president of the Refrigeration and Air Conditioning Contractors Association, which he credits as the source of many ideas for sales and record-keeping methods used in M. & R. firm, and has long been active in the New York City's "guild" of refrigeration contractors.

The leads that develop as a result of these activities and other means are, of course, assigned to salesmen for follow-up, the decision as to which salesman gets a particular lead

being determined by the type of application.

"One salesman may be better qualified for certain jobs than others, so if a lead in his field comes in, it will be assigned to him," Reina says.

Records of all leads are typed on a 3½ by 6-in. form in triplicate giving all pertinent data that is available. First copy of the form is given to the salesman. Second copy goes to the salesman's supervisor who files it under the salesman's name in a daily follow-up file according to the date of the first appointment. This arrangement lets the supervisor know exactly where each salesman stands on prospects.

The third copy of the prospect card is on slightly heavier paper and goes into the master prospect list.

Salesmen Handle Up to 50 Prospects

"We don't set up any definite time limit governing how long a salesman can keep a prospect, but we don't allow them more than 50 prospect cards at any one time. If more leads are developed, the excess cards over his limit of 50 are transferred into a general file. The latter is reshuffled and the prospect assigned to another salesman for a one-shot call. If nothing develops from this, the card is transferred into another file for a possible call next year."

Of course, a notation is made on the card which stays in the master file as to the current status.

Regardless of the type of prospect, a major problem faced by the air conditioning salesman is arriving at a price that he can quote. The firm's salesmen have been well trained along these lines, and according to Reina, the figure quoted by the salesman is right in 98% of the cases. The salesman quotes a price which is later checked in the office.

'Engineering Cost Sheet' Aids In Making Quotations

To simplify this procedure and yet make sure that all factors are considered, the salesmen use an "engineering cost sheet," which is an 8½ by 11-in. form. The heading provides spaces for the job site, customer's name, address, and telephone, number to be assigned to the job, the date, the salesman's name, who made the estimate, and who checked it.

Main body of the form covers a complete description of the job, columns for "estimated" and "actual" costs, and the name of the contractor or subcontractor involved.

First part lists the quantity size, and model of air conditioner, cooling tower, or heating unit, and data as to whether it's a remote system.

Next section calls for details on "placing of equipment" including the entrance size. Approximate amount of sheet metal in feet and whether this includes fresh air connection or not is noted.

Under "plumbing" the salesman must note whether a new meter is required, distance from main to tower and from tower to machine, whether water pressure is poor, good, or excellent, and whether or not a slop sink is required.

The "electricity" section requires data on existing service in terms of phase and amps, what type and amount of service the air conditioning installation would require, distance from meter to conditioner and from conditioner to tower.

There are also notations required on "Freon" piping, steam piping, insulation, controls, permits, cutting and patching, and terms of payment.

Itemized Estimate Plus Markup Gives Price

From the itemized estimated costs the salesman arrives at a total cost to which he applies predetermined percentage of markup to arrive at the price which he quotes to the customer.

If the prospect is willing to sign immediately on the basis of the price quoted by the salesman, a contract is immediately drawn up by the salesman for signing by the salesman and prospect.

"This is done in the interest of speed but it does not necessarily mean that we are bound to go through with the job at this price, if the salesman has made a mistake. A clause is provided in the contract which states that it is not binding unless signed by an officer of our company," states Reina.

When the salesman returns to the office with the cost sheet it is carefully checked by the engineering department to determine if the salesman's estimates were correct. If his figures were close enough (and Reina says they are 98% of the time), the job is approved and the contract signed by a company official.

Overhead Included In Markup

"Checking these estimates is very important, but where many companies in this business make their mistake is to neglect overhead," Reina emphasizes. "They don't include it in their costs. We know that our overhead runs about 20% and that this has to be covered on every job. So when we apply our markup to the cost estimate, this 20% overhead is included in the markup and thus becomes part of the selling price of each job."

As a further aid in keeping track of costs and profits, as well as the status of each job once M. & R. Engineering has landed the contract, a number is assigned to each job and a master folder set up under that number.

Paper Work Important

All paper work, including penciled notes, etc., pertaining to that job is kept carefully on file in that job folder. Every piece of work that the company does on air conditioning must be charged against a particular job number.

"You have to be pretty careful about this when you're handling hundreds of jobs a year," Reina insists. "We go so far as to insist on getting all bills in duplicate so one can be filed in the proper job folder."

The job folders themselves are filed numerically by year. Thus, the first job that came in 'way back in January of this year would be Job No. 1-1951, the second one would be Job No. 2-1951, etc.

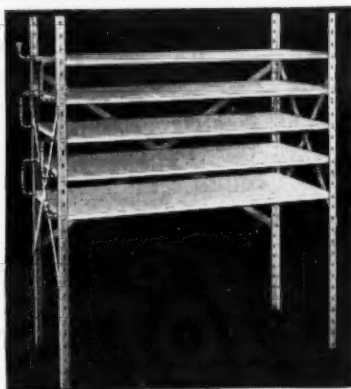
Complete Cross-Index

A cross-index is provided, however, listing the owner's names alphabetically and showing the job number so that if a question comes up regarding a certain job and only the owner's name is known, the job number and thus the job folder can be readily found.

This same job number also appears on the 3½ by 6-in. heavy card which is kept on file in the service and installation department to provide a permanent record of installation and service data. This card is not filed by job number but rather by the address of the installation in numerical order.

The first card in this file, for example, might be for an installation located at 1001 Flatbush Ave. Directly behind it could be 1002 Church Ave. The chances of the numbers being duplicated are very small.

(Concluded on next page)



Freeze Foods Faster with DOLE QUICK-FREEZE PLATES

DOC DOLECO says—

You can get DOLE Quick-Freeze plates either as single plates or as complete assemblies, ready to install in freeze room or cabinet.



DOLE Quick-Freeze Plates freeze foods faster because cooling is done by conduction instead of by convection. With DOLE plates foods are frozen 1½ to 5 hours faster than with ordinary methods. DOLE contact freezing helps minimize dehydration of the food and offers greater operator comfort in the refrigerated areas.

DOLE Quick-Freeze Plate Units are available in standard or special sizes to meet any requirement.

Write for Catalog AE



DOLE REFRIGERATING COMPANY
5920 N. PULASKI RD., CHICAGO 30, ILLINOIS

103 Park Ave., New York 17
44 Elgin St., Brantford, Ont.

DATE.....
TEMPERATURE.....
HUMIDITY.....

SALESMAN'S DAILY REPORT
AIR CONDITIONING
TOWERS—SERVICE CONTRACTS

NAME..... RESULTS

Hour of Call	FIRMS CALLED UPON	ELAPSED TIME	Collection	Lead	Canvass (New)	Follow Up	Got An Interview	Service Contact	Made Survey	Presented Proposal	Got Order	Complaint
9												
30												
10												
30												
11												
30												
TOTAL												

TOTAL BUSINESS BOOKED TODAY \$.....

DAILY REPORT form printed on 8½ by 11-in. sheet, can be quickly filled out by salesman to give accurate record of his previous day's activities merely by writing down names of firms called upon and checking off under proper column at right results of the call.

Complete Records Assure Smooth Operation

(Concluded from preceding page)
even in the great population area served by M. & R., but even if they are, the street names won't be the same.

An arrangement like this would appear to be quite logical. Whenever a service call is phoned in, the clerk or dispatcher receiving the call almost always wants to know the address if it's a large city so he can mentally re-route servicemen while still talking with the customer. Thus it would appear only natural to file these cards by address instead of alphabetically by the name of the owner.

Immediately below the top address line of this card is the name of the owner, followed by details of the installation. This section provides blanks to show date job was started, date equipment was delivered, date completed; make, model, and serial number of equipment and when the sheet metal, plumbing, electrical, steam fitting, and insulation were each started and completed.

Then follows on the bottom and reverse side of the card lines to record brief reports of service calls made on the job.

A somewhat similar series of cards

—likewise filed numerically according to street number—is maintained by the firm for its extensive service operation on household refrigeration. This department does considerable work on a maintenance basis for owners of apartment houses as well as individuals. The total household business, however, amounts to only 25% of M. & R.'s operation, Reina indicates.

The domestic file cards are color-coded, green cards being used for contract accounts, pink for c.o.d. calls, and canary for charge accounts.

Completely Equipped, Air Conditioned Shop

A compact but completely equipped air conditioned shop is maintained by the firm for repairs to both air conditioning and domestic units. A complete reconditioning operation is possible, including refinishing in the paint spray booth.

Thanks to having these shop facilities, the company has been able to offer profitable special service for owners of window air conditioning units, Reina reveals.

"For \$40, we remove a window unit from the home or apartment, take it to the shop, clean it, make

any necessary repairs, change the filters, store during the winter in a corrugated carton, and then re-install the units in the spring."

This has aroused considerable interest among users of such units during the past three years that the firm has offered this service, and it has likewise been a good source of revenue. At first the company packed the units in wooden crates, but finally concluded this was not only too expensive but unnecessary.

"The cartons do as good a job of protecting the units, if not better, and are much cheaper," Reina says.

M&R

ENGINEERING COST SHEET

DATE.....
SALESMAN.....
Customer's Name.....
Job No.....
Address.....
Tel.....
Checked by.....

EQUIPMENT:				Est. Cost	Act. Cost	Contractor
Item	Quant.	Size	Model			
Air Cond.						
Tower						
Heating Unit						
Remote						
PLACING OF EQUIPMENT:						
Details:						
SHEET METAL: Approx. _____ ft (incl. Fresh Air)						
PLUMBING: New Meter (Not) Required.						
Main to Tower: _____ ft. Tower to Machine _____ ft.						
Water Pressure: (Poor) (Good) (Excellent)						
Stop Sink (not) required						
ELECTRICITY: How _____ phase, _____ amps.						
Job requires _____ phase, _____ amps.						
Meter to Cond. _____ ft. Cond. to Tower _____ ft.						
FRESH PIPING:						
STEAM PIPING:						
INSULATION:						
CONTROLS:						
PERMITS:						
CUTTING and PATCHING:						
TERMS OF PAYMENT:						
COST:						
M. U.						
Commission						
TOTAL						
Credit approved by:						
REMARKS:						
Indicate dates:						
Delivered						
Completed						
Tested, checked and bid						
ROR card mailed						

COST of prospective air conditioning job is determined by salesman who enters his itemized estimates on this cost sheet (8½ by 11 in.). Officials of firm check his estimates for accuracy before approving contract.

PROSPECT CARD

Name	Date
Address	City
Telephone No.	Source
Salesman	Dealer Arrangement
Check Items Interested In:	Exp. Date
<input type="checkbox"/> Air Conditioning <input type="checkbox"/> Heating <input type="checkbox"/> Com'l Ref.	
H. O. <input type="checkbox"/> Coal <input type="checkbox"/> Gas <input type="checkbox"/> Oil <input type="checkbox"/> R. A. D. <input type="checkbox"/> W. A. <input type="checkbox"/>	

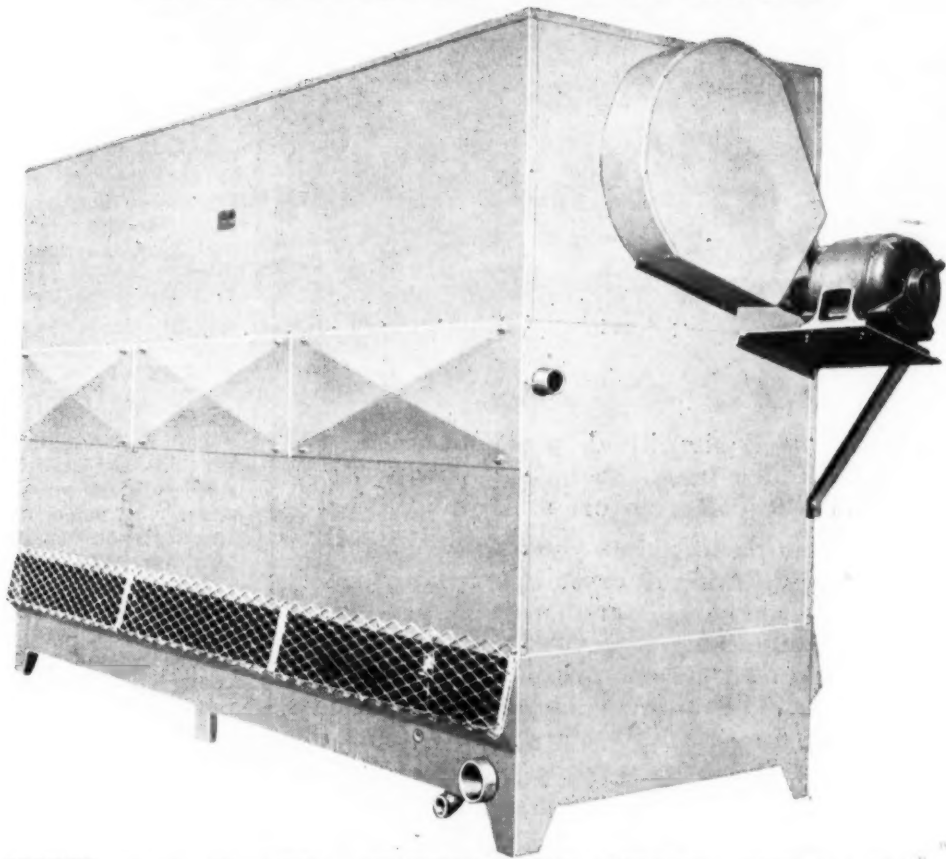
PROSPECTS for air conditioning are listed on a card (3½ by 6 in.) in triplicate, one copy going to salesman, second to sales supervisor, third to master file.

INSTALLATION & SERVICE RECORD

Job #			
Address		Terms	
Name		Tel.	
Date Started	Date Del'd	Date Completed	
Make	Model	Ser. #	
Make	Model	Ser. #	
Make	Model	Ser. #	
Sheet Metal	Started	Completed	
Plumbing	Started	Completed	
Electrical	Started	Completed	
Steam Fitter	Started	Completed	
Insulation	Started	Completed	
REPORT	Ser.	Date	Ser. #

HISTORY of installation and service on air conditioning job is kept in handy file on cards about 7½ by 6 in. in size. Cards are filed numerically according to street number, but every installation has its own job number, too.

Good-Fellow COOLING TOWERS



MODEL C F 50 LESS UNI-DRIVE FOR INDOOR INSTALLATION

America's Most Complete Line of Small Tonnage Cooling Towers

A Size and Type for Every Air Conditioning and Refrigerating Requirement

For complete information contact your nearest factory representative or write, phone or wire the factory direct

REPRESENTATIVES IN THE FOLLOWING CITIES:

JOHN L. CRAIG
1923 Castleman Drive
Nashville, Tenn.
DEXTER CO.
2021 Maryland Ave.
Baltimore, Md.
THE FARRINGTON CO.
1824 Florida Drive
Fort Wayne, Ind.
EMANUEL FEINBERG & ASSOCIATES
6432 Cass Ave.
Detroit, Mich.

JOHN B. HEWETT CO., INC.
(William W. Short Co., Inc.)
274 Madison Ave.
New York, N. Y.
J. D. HIGGINS CO.
822 Neil P. Anderson Bldg.
Ft. Worth, Texas
O. H. HOWELL MANUFACTURERS' AGENT, INC.
1605 Franklin St.
Tampa, Fla.

O. K. McCULLOUGH CO.
119 E. 18th St.
Kansas City, Mo.
E. B. MILLER
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TIME WASTED is money lost, so Philadelphia Appliance Service Corp. devised this door hanger card in an effort to educate customers. Bottom section of the card (below) is a business reply card which the service firm requests the customer to return so that the call can be completed.

* * *

Please Have Your Serviceman Call Again . . .
Will Be at Home, Definitely on—

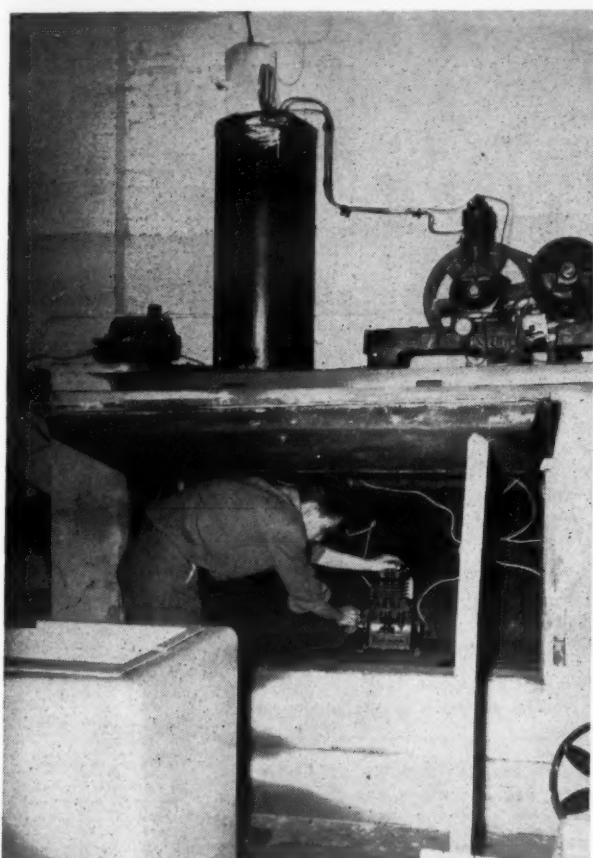
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Name

Address

City

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AS MUCH of the service work as possible is done in the customer's home. If the job is too complicated, the unit is sent to the company's repair department where equipment is available. Here a motor is put into a drier after a fresh paint job.

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- CLEAN UNIT

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THIS
CARD
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Yes

I want your factory authorized and trained service representative to check my refrigerator. I agree to pay your inspector when he completes the work.

Name

Address

City Zone State

Phone No.

THREE-FOLD SELF-MAILER is sent each fall to the entire list of customers. A self-addressed post card as part of the mailing piece helps to draw a good many affirmative replies.

Good Service Requires Forethought

Careful Planning of Details, Systematic Procedures, Good Records
Make Philadelphia Refrigeration Service Firm a Profitable Venture

PHILADELPHIA—Proper planning and systematic procedures are necessary to make a refrigerator repair service worth while, George P. Ward, manager of Philadelphia Appliance Service Corp., has found.

"Doing a volume repair business on refrigerators is a full scale business," he says. "If one or two jobs are to be done a day, then it may be easy enough to keep track of all the duties that apply to them.

"But when we get upwards of 90 calls a day for service, it takes some careful planning and the installation of a workable system to keep track of all the operations that have to be handled to complete these calls."

The Philadelphia Appliance Service Corp. is a subsidiary of Raymond Rosen, distributor here. The corporation works independent of other distributor operations and maintains its own records, files, and books.

"We service the appliances that are sold by some local dealers handling our products," says Ward, "and this has been found to be very beneficial to both the distributor and the retailer."

"Some retailers do not have a repair department of their own and in order to sell customers, service must be featured. They can, therefore, direct their customers to us for service."

"We like to handle the repair work on refrigerators because we are equipped to do a good job and can help the retailer maintain customer goodwill and keep the refrigerators in good working order so that the customer can get full benefit from it."

The company offers a 24-hour serv-

ice. It maintains a force of 46 men who use their own cars during working hours. Because of the number of men employed, the firm has two shifts, a half hour apart so that it eases proper checking in and out. One shift reports at 8 a.m. and the other at 8:30 a.m.

All servicemen get a flat rate for car expense and if they drive more than a stipulated number of miles, they are given additional reimbursement.

"We have found that our servicemen prefer to use their own cars," Ward stated. "We also think it is a good idea because we do not have to maintain a fleet which necessitates substantial overhead. Neither do we have to be concerned about storage, damages, and fuel, as all this is taken care of by the individual serviceman."

Prompt Service Guaranteed

Customers are serviced promptly. Any calls coming in up to noon are handled the same afternoon. Afternoon calls are answered the next morning, unless it is emergency service.

Servicemen are divided into districts, which cover the entire Philadelphia area suburbs and outlying territory, wherever there are dealers served by Raymond Rosen. Servicemen are divided according to the number of sales of refrigerators in each of these areas so that there are larger working crews in one area and a smaller number in another.

"From time to time we change the number of servicemen that work in each area to comply with the amount of servicing that has to be done," says Ward. "We just route out

calls for the specific areas and let the servicemen for an area handle the jobs."

Three supervisors work under Ward and have a variety of duties such as spot-checking the men on jobs, calling on customers who have complaints, and supervising new men. Orders from Ward are sent down to the servicemen through the supervisors, thus a complete coverage of the entire force is maintained.

All servicemen report in at the start of the day and at the close. In addition, they call the office three times a day so that a check is kept on them and also to see if there are any special orders or jobs. If a serviceman calls at a home and the person is out, he must call the office immediately so that a record is kept. Then the serviceman can be assigned another job and he is not charged with the call.

All servicemen work on a flat weekly salary. They are expected to do their duties as quickly and efficiently as possible, promote goodwill, and give the customer every possible courtesy. No serviceman is permitted to do refrigeration repair work on his own even after working hours. The firm feels that they are paying him a satisfactory salary for a full day's work and they want him rested and fresh for his next day's duties.

Semi-Monthly Meetings Held

About twice a month, a meeting of all servicemen is held. This is usually Thursday afternoon and the meeting lasts from 3 p.m. to 9 p.m. The reason for starting at 3 p.m. is to show the men that the meeting time is being conducted on company time.

(Concluded on next page)

The KEY to AIR CONDITIONING

by James J. LaSalvia

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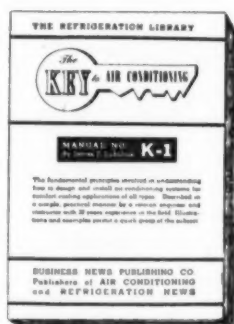
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Strictly a Family Affair

Fort Wayne Contractor Raises His Own Servicemen, 10 Sons, 6 Daughters Assure a Loyal Staff

By John O. Sweet and George M. Hanning

FORT WAYNE, Ind.—A radio comedian was telling recently about the man whose family had become so large that he was afraid to go home anymore and ask: "What's new?"

The comedian might well have had in mind one Lawrence E. Tippmann, local refrigeration and air conditioning contractor. For Tippmann has what is probably the largest family of any man in the industry.

With a little prompting from his wife, Tippmann a short time ago counted 10 boys and six girls ranging in age from one and a half to 19. Only multiple birth was that of girl triplets, now three years old.

Asked for a run-down on all his children's ages, the contractor started to list them, hesitated, called his wife on the phone, and then came up with these figures: 19, 18, 16, 14, 13, 12, 10, 9, 8, 6, 5, 4, 3 (triplets), and 1½.

This imposing line-up has brought Tippmann no little publicity, both locally and nationally. This is quite understandable to practically everyone—everyone but Tippmann, that is.

"People think the size of my family is unusual," he remarked. "But it doesn't seem that way to me. Every child has his own personality and if one is missing at dinner, we are aware of it at once."

Having 10 boys in the family is something of an advantage, too. They

provide a pretty sizeable labor supply when help is needed. Such an occasion arose some time back when Tippmann started construction of an office and shop on his home site just outside the city limits. Four of the older boys pitched in and helped put it up in no time.

EXPERT SERVICEMEN IN THE MAKING

If Tippmann's plans materialize, the boys will all be expert refrigeration servicemen eventually. At any rate, he's going to give all of them a chance to learn the trade—just as his father taught it to him back home in Pennsylvania.

The oldest boy, Larry, 18, is already working full-time in the business. Number two son Joe, 16, does refrigeration service work during the summer. Although only in high school, Joe, according to his proud father, "already knows more about refrigeration than the average serviceman around town. He has a natural aptitude for mechanical work and an insatiable curiosity about what makes things tick."

A family of 16 children, however, also presents some problems (as if you wouldn't imagine!). One of them is to keep panes of glass in the windows.

"Every fall we have to put new window panes in before it gets cold," Tippmann remarked, gazing thoughtfully at the big house. "The kids

keep kicking them out during the summer."

As might be guessed, transportation, too, is a problem. Or, more accurately, was a problem until Tippmann hit upon a solution in 1947.

That year, he bought a school bus chassis and had a local firm put a special body on it. Now, when the family decides to hit the road for a vacation trip, into the bus go station wagon seats, a couch, cots, refrigerator, clothes cabinet, and other items. Tents and allied equipment go in a compartment which extends out over the motor hood. Then in file the 18 Tippmanns, and away they go.

The van is so big that even with this crowd, there's room in the back for the kids to play catch and jump around, which helps to keep travel fatigue and trouble to a minimum. And a vehicle this size enables the family to make extensive trips fairly economically.

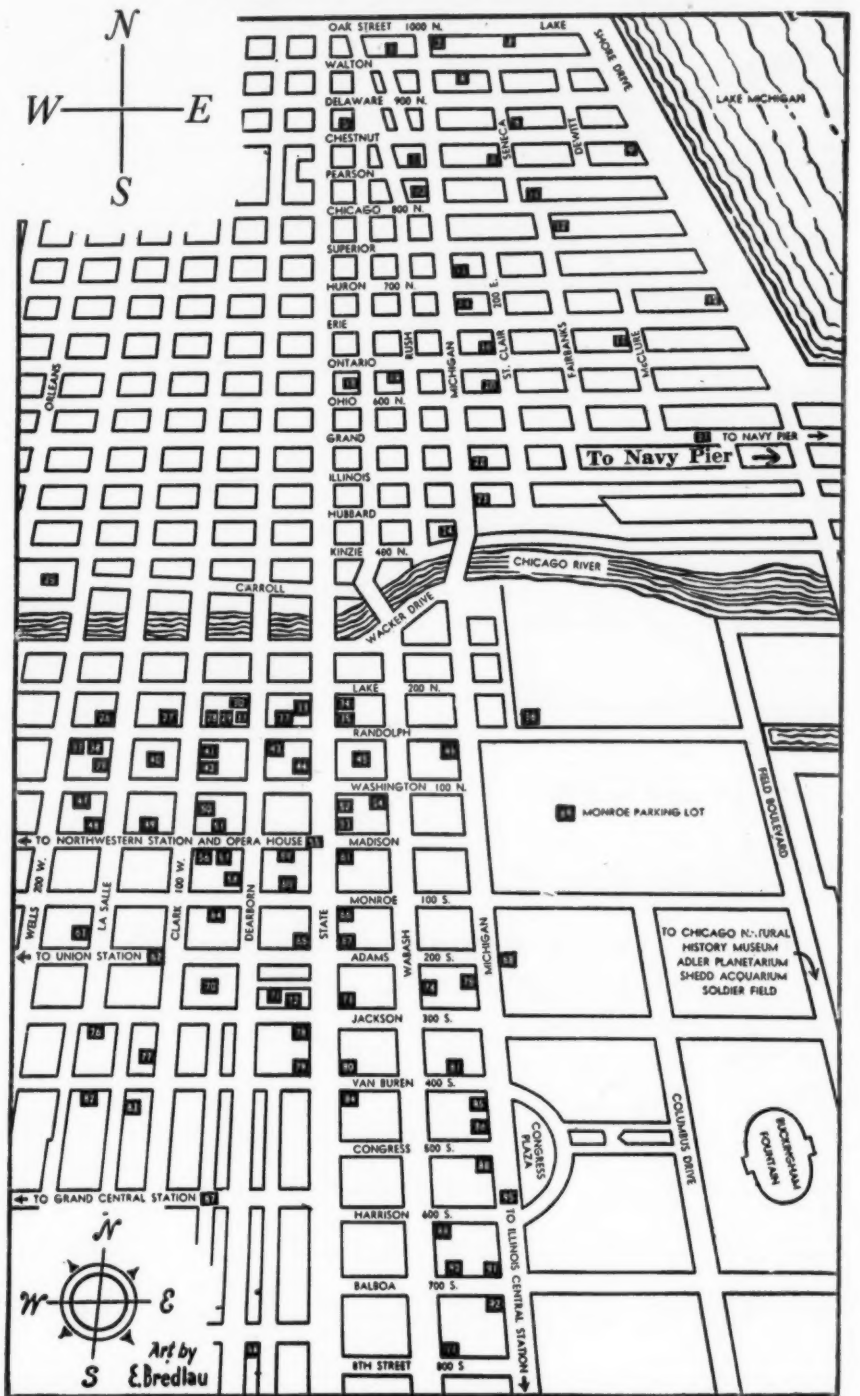
BUS COMES IN HANDY FOR BUSINESS

Tippmann has also found the van very useful in his business (he sells large Baker equipment—both "Freon" and ammonia—for Burge Ice Machine Co. in a territory comprising northeastern Indiana and a few counties in northwestern Ohio and southern Michigan).

He has mounted a 40-ton 5 x 4 ammonia compressor in the van and taken it around the territory as a demonstration unit for prospects. This stunt has produced more sales for Tippmann than any other method used, he said. Once he even sold a unit right off the van.

Another advantage of the bus is that all the equipment and tools needed for large jobs—such as welding equipment, pipes, and compres-

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sors, can be carried in it. This is a great convenience, Tippmann pointed out, when servicing equipment located 50 to 75 miles away.

Tippmann also has a F6BF compressor mounted in a panel truck and uses this unit, too, as a demonstrator.

Since the number of prospects for his equipment is relatively small, Tippmann relies mostly on a direct-approach method in selling. He depends mainly on the manufacturer for direct-mail prospecting. He has divided his territory into sections that can be covered in two-day trips, during which he calls on dairies, ice companies, condenseries, and packing plants.

BIDS ON GOVERNMENT JOBS

He digs up other business by bidding on government and institutional jobs.

Tippmann has followed the refrigeration trade all his adult life. Before coming to Fort Wayne eight years ago, he was service manager in Gary, Ind., for Frigidaire. After the same number of years with Frigidaire, he became a dealer for Burge and later set up his own company—but remained affiliated with Burge, when the latter changed its organizational setup.

In addition to his sons, Tippmann is assisted in business by his brother.

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R. C. Servat To Manage General Controls' New Orleans Branch

LOS ANGELES—Robert C. Servat has been appointed branch manager of the General Controls Co.'s new branch office in New Orleans, J. F. Ray, vice president in charge of sales, announced recently.

Servat will have complete charge of all New Orleans branch office territory activities, including sales, engineering, and service on the General Controls' line of automatic controls.

The address of the new office is 426 Audubon Bldg.



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ERATION NEWS, 450 WEST FORT ST.,
DETROIT 26, MICH.

Refrigeration Problems

and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

'Freon-22' In Field Service

During World War II, low-temperature equipment for instrument testing, "cold treatment" of metals, blood plasma desiccation, and similar highly specialized applications, brought out a need for a refrigerant similar to "Freon-12" as to safety, but having a lower boiling temperature, a greater density, and a higher net refrigerating effect per pound than "Freon-12."

In order to obtain temperatures for instrument testing at -67° F., for example, the evaporator had to be at about -80° F. This in turn meant an evaporator pressure of about 24 in. of mercury vacuum, if "Freon-12" was used as the refrigerant. This made it difficult to keep air and moisture out of the system, and in particular it meant much more seal trouble than if the evaporator pressure had been at about 0 p.s.i.g.

Moreover, "Freon-12" at this low pressure has low density, that is, "Freon-12" gas at those low temperatures is quite "light," so the displacement per ton of refrigeration has to be high. This not only required large, bulky compressors, but the lower the vacuum, the more difficult it was to avoid high losses due to clearance volume.

Therefore, the physical-chemists got busy with their atoms and built another refrigerant—"Freon-22."

"Freon-12" consists of one atom of carbon, two atoms of chlorine, and two atoms of fluorine (CCl₂F₂). "Freon-22" also has one atom of carbon, and two atoms of fluorine; however, it has only one atom of chlorine, but to make up for the missing one, it has an atom of hydrogen instead (CHClF₂).

'FREON-22' REDUCES COMPRESSOR LOSSES

These apparently slight atomic differences make quite a difference in the characteristics of the newer refrigerant "Freon-22." As was intended, "Freon-22" boils at a much lower temperature than "Freon-12"—-41.44° at 0 p.s.i.g., instead of -21.6° F.

Thus, with a -80° evaporator, it was possible to operate the compressor at a 20-in. vacuum instead of a 24-in. vacuum. This does not sound as if it is much improvement, a gain of only four inches of vacuum or about 2 p.s.i. pressure, but it helped the compressor manufacturers a great deal in enabling them to reduce clearance volume losses due to re-expansion in the condenser.

Equally important was the change in density of the vapor. At -80° F. one cu. ft. of saturated "Freon-12" vapor weighs .0864 lbs.; or putting it in terms of volume, it takes 11.57 cu. ft. of saturated "Freon-12" vapor to weigh one pound. This is almost as "light" as ordinary air at normal room temperatures, for 13.35 cu. ft. of air is required per pound.

"Freon-22" vapor is much "heavier"; or to say it more correctly—the density of "Freon-22" vapor is greater than that of "Freon-12." At -80° F., the density of "Freon-22" vapor is .1036 lbs. per cu. ft., and its specific volume is 9.65 cu. ft. per lb. This is an improvement of 16.6% or about 1/6 in itself, for the compressor can have 1/6 less displacement, and still pump as much "Freon-22" by weight as "Freon-12."

'FREON-22' HAS GREATER REFRIGERATING EFFECT

But the amount of refrigerant by weight pumped by the compressor is only part of the story. Each pound of "Freon-22" has a great deal more refrigerating ability than a pound of "Freon-12." The latent heat per

pound of "Freon-12" at -80° F. is 77.17 B.t.u., and for "Freon-22" it is 105.1 B.t.u. If, in each case, the liquid is pre-cooled to 0° F., the "net refrigerating effect" of "Freon-12" is 60.52 B.t.u. per lb., and for "Freon-22," 85.05 B.t.u. per lb., a gain of 40.3%.

So not only are we able to pump an equal weight of "Freon-22" with a compressor of 5/6 of the displacement required for "Freon-12," but every pound pumped has 40% or 3/10 more refrigerating effect. Putting these two together, we find that the displacement per ton of refrigeration for "Freon-22" at -80° F. is only 22.8 c.f.m. compared to 38.2 c.f.m. for "Freon-12."

This makes it possible for a compressor of the same size (displacement) to do 67% (2/3) more refrigeration with "Freon-22" than with "Freon-12." Or looking at it another way; if we require that the compressor furnish a certain amount of refrigeration, one using "Freon-22" need only have 60% (3/5) as much displacement as one using "Freon-12." These values are "theoretical," the actual gain is somewhat less.

CAPACITY PER H.P. ABOUT THE SAME

It is important to understand that this very considerable increase in capacity for the same compressor displacement, is not "free."

To illustrate this, if a compressor using "Freon-12" and driven by a 3-hp. motor were changed over to "Freon-22" without changing the compressor speed (the compressor displacement remaining the same) the capacity would increase 2/3 but the power required would also have to be increased about 2/3, so the 3-hp. motor would have to be replaced with a 5-hp.

Or, if the same motor were used, the compressor speed would have to be cut about 2/3 or 40%, so that its displacement would be reduced to about 2/3 or 60% of what it was when using "Freon-12." On open-type compressors, this can be done by changing to a motor pulley having a diameter 2/3 that of the former pulley used with "Freon-12." As a rule, "Freon-22" cannot be used in hermetic motor-compressors built for "Freon-12." The compressor cannot be slowed down so as to get the lower displacement (about 60% of the original "Freon-12" displacement) to match the horsepower of the motor, nor can the motor horsepower be increased to match the additional 67% capacity obtained by using "Freon-22" at the standard speed and displacement.

EFFECT OF TEMPERATURE ON HORSEPOWER

At least one manufacturer of hermetic units make its 25° units for "Freon-12" also usable as 0° units for "Freon-22." At the same evaporator temperature the "Freon-12" unit would have to be over-motored by about 67% if "Freon-22" were to be used in it.

However, using the same refrigerant, "Freon-12," the motor loading is much less on a 0° evaporator than on a 25° evaporator, about 25% less in fact. This cuts the required horsepower when using the 25° "Freon-12" unit with "Freon-22" on a 0° evaporator. The motor must still be about 30 or 35% greater.

Therefore, this company puts an extra heavy motor, on its "Freon-12," 25° unit. Then the motor is heavy enough to handle the compressor on a 0° evaporator with "Freon-22." Of course, this oversize motor has more horsepower than necessary when the unit is being used with "Freon-12" on a 25° evaporator, but this is no disadvantage, for it is underloaded and uses approximately the same amount of electricity that it would if a motor of smaller maximum horsepower had been used.

Amount of current used depends mostly on how much work is done rather than on the maximum available horsepower of the motor. The oversize of the motor makes little difference in the cost of operation.

(To Be Continued)

Hill Sees Need for Refrigeration Men To Seek Ideas from Other Industries

LANSING, Mich.—"The surest and straightest road to the future development of refrigeration is an open exchange of ideas with all types of industry in order to work out your many problems."

So declared Walter P. Hill, president of the newly formed Walter P. Hill, Inc., a product designing firm for the development and design of new refrigeration products and of the machinery to produce them.

Hill spoke before a combined meeting of the Western Michigan and Detroit sections of the American Society of Refrigerating Engineers here recently on the subject "The Future Engineering of Modern Refrigeration."

INDUSTRY HAS SHORT HISTORY

"We must recognize the fact," he said, "that the refrigeration industry is a comparatively new or young industry and as such has no long mechanical history to research."

"It is therefore extremely necessary that the refrigeration industry does its main research in other mechanical fields where research will be more fruitful."

"The refrigeration industry is further handicapped by the fact that it has no theoretical background and

"Because of this condition there is a tendency for refrigeration engineers to assume a mantle of superiority or seclusion, and outside ideas are either overlooked or not considered."

"In refrigeration then the easiest way to develop things properly is to glean all the ideas available from all sources, consider them carefully, then reassemble or reuse to accomplish a new or anticipated result."

"It is my personal experience that the many developments which I have contributed to refrigeration have come about only through the exchange of ideas with some refrigeration engineers who were far-sighted enough to explain to me their complete problem and then allow me to work out their difficulties in view of the problems which I had confronting me with my own concern."

Before setting up his own company,

Hill was manager of product development for Wolverine Tube. "In this case," he continued, "a refrigeration engineer gets a job done, another engineer in a tube company furthers his own company's interest, both engineers doing their job, and both companies being better off."

"If this type of customer and supplier relationship can be worked out in every phase of the business, the refrigeration industry, which is now in its infancy, can rise to bigger and better heights in exactly the same manner as our country has by use of the patent system."

"I do not want you to gather the impression that the refrigeration industry, in no instances, has carried on in this manner; I merely want to state that it is not the general practice of this industry to develop their products in this manner."

MORE IDEA BORROWING NEEDED

"My salient point is that there should be more of this borrowing from all types of industry. We feel very strongly about this in the product development department, so strongly, that recently I severed my connections with Wolverine Tube and formed my own business solely for development."

"I'm still on a retainer basis with Wolverine and we are doing a lot of their development work. In this new business, I will not manufacture but I will build and develop machinery for new products and processes."

"I would like in closing to remind you that the surest road to success is to make it easy for somebody to follow you, and that the surest and straightest road to the future development of refrigeration is in open exchange of ideas with all types of industry in order to work out your many problems."

"You will find then that most of your problems are problems which in some other industries do not exist at all. It is merely a matter of borrowing other ideas to solve your own problems and in this way you are merely borrowing tried and proven results."

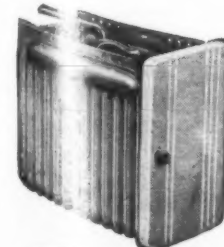
PRODUCTION VERSATILITY



The ample facilities available to STANDARD for the production of heat transfer equipment, and its 30 years experience in design and precision manufacture, have contributed to new advances in the welding and fabrication of stainless clad copper and in the manufacture of a wide variety of refrigeration equipment in aluminum, brass, carbon steel, copper, and stainless steel.

The products shown on this page are a few which have been and are available to service men, refrigeration wholesalers and manufacturers. We invite inquiries on stamping, forming, blanking, piercing, welding and contract manufacturing in any of these materials.

See startling new developments
BOOTHS 112 and 114
All-Industry Refrigeration and
Air Conditioning Exposition
November 5-8
Navy Pier, Chicago



Ask for Bulletins

STANDARD REFRIGERATION COMPANY
Office: 332 S. Hoyne Ave., Chicago 12
Factory: 3535 Fillmore St., Chicago 24

IT COVERS ALL MY NEEDS

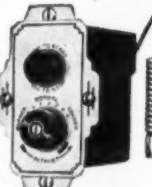


In the Cutler-Hammer Line you will find "specific-fit" replacement units for more than 1000 refrigerator models

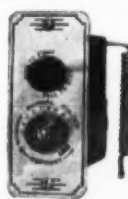
Just a few of the "specific-fit" controls in the unequalled Cutler-Hammer line.



9502N383 C-H "specific-fit" for Copeland 1937-1938 models.



9502N372 C-H "specific-fit" for Kelvinator 1932 models.



9502N95 C-H "specific-fit" for Tagliabue models.



9521N29 C-H "specific-fit" for Frigidaire 1936-37-38 models.



9525N106 C-H "specific-fit" for Coldspot 1949-1950 models.

No "modifying," no fussing, no delay when you answer service calls with C-H "specific-fit" replacement control units. You take out the old, put in the new... and you are through! It's the easy, sure way to do the job right because Cutler-Hammer has manufactured such "specific-fit" units for more than 1,000 models of refrigerators built since 1925. And you'll also quickly see how the widely-known Cutler-Hammer name (advertised in The Saturday Evening Post, Time, Newsweek, American Home, Better Homes & Gardens, House & Garden, etc.) builds customer confidence and good will. The C-H refrigeration control catalog, as well as the items you need, are available through your authorized C-H refrigeration wholesaler. Do not forget, this C-H refrigeration control line includes the popular general purpose two-button replacement unit (Type 9502) which incorporates dependable motor overload protection. CUTLER-HAMMER, Inc., 1362 St. Paul Avenue, Milwaukee 1, Wisconsin.

See Cutler-Hammer Exhibit Booths 204 and 208 All-Industry Exposition Chicago Nov. 5-8, 1951.



What Readers Said About 25th Anniversary Issue

WILL BE READ, RE-READ

Deepfreeze Motor Products Corp.
N. Chicago, Ill.

Editor:

To say that I have had an opportunity to thoroughly read your 112-page Silver Anniversary Issue, would be to say that I haven't anything to do.

I have had an opportunity to leaf through page by page and to study the contents of the material in this issue to the extent of about 8 or 10 pages.

I think you did an outstanding job in this publication, and it is an issue that will be read and re-read by people in the refrigeration business for many months to come.

B. G. SANDERSON

ENJOYED PROGRESS REVIEW

Peerless of America
Chicago, Ill.

Editor:

The Silver Anniversary Issue was a masterpiece. You and your staff are to be congratulated on a wonderful job.

We all enjoyed this review of the highlights and progress of the industry in the past twenty-five years.

J. M. O'CONNOR

'LEARNED MANY THINGS'

E. I. duPont de Nemours & Co.
Wilmington, Del.

Editor:

Dick Sickler and myself have both read your Silver Anniversary Issue with a great deal of interest: this is a real contribution to the literature, and I personally learned a number of things which I had not known before about the development of this very great industry.

You and your staff are certainly to be congratulated on such an excellent publishing job. Whenever anybody celebrates an anniversary, he is apt to strain his arm patting himself on the back, and we were very pleased to see how AIR CONDITIONING & REFRIGERATION NEWS avoided any excessive self-praise, and really did an excellent reporting and editorial job, continuing your twenty-five years of service to the industry.

As you indicated, the first twenty-five years were only a starter, and I am sure the next twenty-five will make the first twenty-five look like we were just getting started.

D. C. MCSORLEY

REFLECTS FORESIGHT

Air Conditioning & Refrigerating Machinery Association
Washington 5, D. C.

Editor:

My hearty congratulations on the very fine Anniversary Issue of the NEWS. It is excellent in every respect and, for me, it has been absorbing reading. To anyone who has been connected with the industry as long as you and I have, the significance of many of the developments of years ago only now comes into proper perspective. Reading the Anniversary Issue brings back a host of memories.

The NEWS played such a leading part in the progress of the industry that I wonder if you and Mr. Cockrell, with all your foresight, realized how well and strongly you had built. The industry is much in the debt of the NEWS for the years of constructive work which has benefited the industry so much.

Again congratulations and many thanks for a remarkable job on the Anniversary Issue.

WILLIAM B. HENDERSON

HAVE GROWN TOGETHER

Alco Valve Co.
St. Louis, Mo.

Editor:

As you are aware, like your publication, we have grown with the industry and contributed to it to the best of our ability. We believe the spread that we took in the Silver Anniversary Issue expressed this feeling, taking pride in our contributions to the industry, and at the same time expressing our thanks for the industry's assistance to us.

We are happy to have had this opportunity of being a part of your Silver Anniversary publication.

We look forward to seeing you at the All-Industry Show in November.

GEORGE J. BOEPPLE

CONTRIBUTION TO FUTURE

Frigidaire Div.
Dayton, Ohio

Editor:

In turning through the pages of your truly marvelous Silver Anniversary Issue for the second time and, this, in spite of a series of meetings and a wife in the hospital, I am greatly impressed with the grand job that you and your associates have done.

In my opinion, it is a most constructive piece of work. In addition, you have helped many of us who have been around for a "few" years to recall many very pleasant memories. It is perhaps trite to say that oncoming events cast their shadows before them, but in recording such a fine history of a great industry, I believe you have made a major contribution to its very bright future. More power to you and your associates.

P. M. BRATTEN

ITEMS BROUGHT MEMORIES

J. C. Battles
Crystal Lake, Ill.

Editor:

My warm congratulations on the Sept. 17th Silver Anniversary Issue. I went through it article by article, page by page. This issue must have involved a terrific amount of work by the entire staff.

A lot of events and personalities mentioned brought back memories and in some cases trying experiences. Just for the heck of it I red-penciled a number of articles which were of special interest to me. At the risk of presenting a "hodge podge" of unrelated events I will list those articles I marked.

Page 40: (1932) "Goldberg, Fedders Agent Changes Firm Name."

Page 49: (1933) "Von Meyer Made Copeland Users Dept. Manager."

Page 52: (1934) Photograph of Frank Smith, C. M. Brown, and Chief Tecumseh.

Page 54: "Integrity and Personality" Describe Our Industry." An outstanding editorial.

Page 55: (1935) "Cabinet Sales In Commercial Field Show Gain." (1934 report from Commercial Refrigerator Manufacturers Association by Paul H. Sullivan, executive secretary.)

Page 58: (1935) "Harry Alter Co. Catalog Lists Refrigerator Parts." (One of first if not the first refrigeration parts "Bibles" issued by Harry Alter Co.)

Page 60: (1936) "Editor Starts World Tour From Kelvinator Meeting." (Everybody in the industry including the writer followed George's momentous round-the-world trip.)

Page 64: (1937) Photograph of the "Four Horsemen" of the refrigeration industry, Messrs. Thompson, Curtis, Buschmann, and Gleason taking over control of the Copeland Refrigeration Corp. (One of the happiest, smoothest, ablest groups of men in the industry.)

Page 66: (1937) "Refrigeration Parts & Supplies Association Selects Stevens Hotel, Chicago, As Site For All-Industry Exposition, Jan. 17-19, 1939." (I was there.)

Page 68: (1938) "Tecumseh Now Producing Line of Hermetics." Page 74: (1939) Photograph taken at 1939 World's Fair. (Wow!)

Page 76: (1939) Cartoon made of first All-Industry Refrigeration Show at Stevens Hotel, Chicago. (Read every word in it and lo and behold I found cartoons of my brother Stew and myself in the line-up.)

Page 77: (1939) "Landmesser Named York Commercial Sales Manager." (This recalls an all-night ride I made over Pennsylvania Pike to see Landmesser and George Boone at York Factory.)

Page 81: (1940) From "Inside Dope," George Taubeneck's fine story "When Sidney Was a Ghost."

Page 86: (1941) "New Self-Service Dairy Refrigerator Added by Tyler Fixture." "Refrigeration Plant Opened by Mills." "Servel 'Super-metric' Hermetic Model Shown In East."

Page 92: (1944) "United Buys Midwest's Commercial Interest." (Along with this deal I made arrangements to represent United in the Middle West, resigned from Midwest and hung up my "shingle" as a manufacturers' representative.)

Page 92: (1944) "Admiral Names Lee Baker To Direct Appliances." (Suave, affable Lee Baker moves to Admiral and bigger things.)

Page 97: (1946) "International Harvester Schedules Freezers First In Former Republic Plant." (One of America's great corporations enters refrigeration field in big way. I think

I saw one of the first IHC Refrigerators come off the line at Evansville accompanied by J. S. Palmer, now chief engineer.)

Page 102: (1948) "Aminco Products Co. Formed In Detroit." (Wit, raconteur, top-engineer Ed Kelle heads newly-formed Aminco Products Co.)

Page 104: (1949) "Dan Robertson Buys Universal Cooler Co. of Canada." (Recall pleasant trips I made to Canadian refrigeration plants.) "Iwashita Appointed Mgr. of Products Planning For G-E Air Conditioning Department." (A well-known refrigeration engineer goes to G-E.)

Page 108: "Some Predictions Based on Current Trends." Interesting photographs, products, that is, of current developments in the refrigeration field. Also a fitting climax to a superb piece of journalism—the Silver Anniversary Issue of AIR CONDITIONING & REFRIGERATION NEWS.

J. C. BATTLES

MORE NAMES TO BE ADDED

Universal Cooler Div.
Marion, Ohio

Editor:

Congratulations on your very fine Anniversary Issue. It is super!

I think your list of ex-manufacturers of household refrigerators on page 37 should include Absopure Refrigerator Div. of General Necessities Corp., Theodore St., Detroit, Mich.; its predecessor Polar Bear Refrigeration Co., 14th and Warren, Detroit, Mich., and its predecessor Kold King Refrigeration Co. of the same address.

T. S. PENDERGAST

BURSTING WITH PRIDE

Remco, Inc.
Zelenople, Pa.

Editor:

I have seen and read your 112-page Silver Anniversary Issue and believe me, I was bursting with pride.

It was a phenomenal job! How in the world did you ever accomplish it?

Actually, George, it was like sitting down and visiting with an old friend in the industry. It's my bet that the vast majority of readers will preserve this issue for posterity.

Keep up the good work!

KEN NEWCUM

HELPED INDUSTRY GROW

McQuay, Inc.
Minneapolis, Minn.

Editor:

Thank you for your letter of Sept. 27 and permit me to congratulate you upon your Silver Anniversary Issue.

I think it is true to say that while you have grown with the industry you have also helped the industry to grow.

H. BLAKE THOMAS

KEPT UP WITH FAST PACE

Tecumseh Products Co.
Tecumseh, Mich.

Editor:

You are certainly in line for congratulations on the Silver Anniversary Issue. This is a nice issue and job well done.

It so happens that this is my 25th year in the refrigeration business. I can say that it has been a happy 25 years, lots of action, interesting developments, fine people to work with, and made still more exciting by a good industry newspaper that has kept pace with this fast moving game.

C. M. BROWN

DEALER SEEKS EXTRA COPY

Hart & Sons
6 North Leroux
Flagstaff, Ariz.
General Electric Appliances
Heating & Commercial Refrigeration

Editor:

We consider the Anniversary Issue the finest piece of reporting in the refrigeration field and wonder if it is at all possible to obtain another copy?

In the May 28 issue you have "Freezer Specifications." Is this available in booklet form? We do not want to destroy this issue, by removing this information for our servicemen, as we constantly refer to back issues.

We consider AIR CONDITIONING & REFRIGERATION NEWS the best trade magazine on the market today and use it as a company bible.

PHILIP C. HART

FOR THE PERMANENT FILE

Refrigeration Equipment
Manufacturers Association
Washington 6, D. C.

Editor:

First of all, we congratulate you and all on your staff who have assisted in the compilation of material and the actual production of the Silver Anniversary Issue of the NEWS. It is a grand job—well conceived and well executed. This issue undoubtedly will be kept in the permanent file of all subscribers because of the significant historical facts which it contains. You have every right to feel proud of the accomplishment.

W. VERNON BRUMBAUGH

BROUGHT BACK MEMORIES

Bush Manufacturing Co.
West Hartford, Conn.

Editor:

The Silver Anniversary Issue was certainly an excellent job and a fine contribution to the industry. As I looked it over, it certainly brought back many memories concerning our industry.

We certainly will continue to work together, and again, let me congratulate you on a job well done.

CECIL BOLING,
Vice President

RECORDS FORMATIVE YEARS

Tyler Fixture Corp.
Niles, Mich.

Editor:

I have had an opportunity of reading carefully your Silver Anniversary Issue and, without reservation, I think it is the finest thing I have ever read.

Rolling back the years brought back many pleasant memories of the associates in this industry and re-established in my mind the details surrounding the formative years of our great industry.

JOSEPH W. KRALL

SEES NEXT 25 EVEN BETTER

Servel, Inc.
Evansville, Ind.

Editor:

Congratulations, and may your past 25 years be "small potatoes" compared to the next twenty-five!

W. PAUL JONES

A SIGNIFICANT MILESTONE

Wolverine Tube Div.
Detroit, Mich.

Editor:

We were delighted to have a small part in the production of such a historic review of the growth of the refrigeration industry.

Without question, your issue marks a significant milestone, for all of us have had the privilege of sharing the progress of the industry and of the NEWS.

Our compliments to all of you at AIR CONDITIONING & REFRIGERATION NEWS for a splendid production.

HAROLD A. HARTY

SHOWS INDUSTRY'S GROWTH

The Bush Manufacturing Co.
West Hartford, Conn.

Editor:

I do not believe anyone had any idea of the manner in which this industry of ours has grown during the past twenty-five years until we had an opportunity to review your Anniversary Issue.

You may be sure that this is one copy that will remain in our archives for a long time.

Congratulations to you, Phil, and the other boys, and let's hope that we will all be around to review the results of the next twenty-five years.

E. M. FLANNERY

VIVIDLY RECALLS CHANGES

Sherer-Gillett Co.
Marshall, Mich.

Editor:

We have received our copy of the Silver Anniversary Issue and you are to be commended upon the comprehensive review of the industry which it gives.

We have not as yet had the time to digest all of the material contained but even a quick reading of the headlines vividly recalls the many changes which 25 years have brought about.

We know that the Newspaper of the Industry will continue to render an equally important and reliable service to the industry during this new 25 year cycle.

J. H. WILSON

HOW TO SELL YOUR SALESMEN ON SELLING . . .

ONE FOOT IN THE DOOR by George F. Taubeneck

The first humorous book on merchandising. You will laugh—learn—profit while you relax with this popular book for businessmen. 400 entertaining, laugh-provoking pages. Immensely enjoyable, as thousands of readers will testify. A best-selling book. . . . \$3.00



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Here is another important book by George F. Taubeneck—an "advanced course" in sales management as a follow-up to his immensely popular *One Foot in the Door*. The distilled wisdom of 29 of America's top sales-minded executives. Received enthusiastically by industrial executives everywhere—a valuable addition to every businessman's library. 600 big pages. . . . \$5.00



— JUST OFF THE PRESS —

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BOTH FEET ON THE GROUND by George F. Taubeneck

The greatest book on appliance merchandising ever written. Written in brisk, interesting style . . . with a wealth of "case histories" showing you HOW—a Chicago Dealer secures prospects for pennies each—25% of the salesmen of a large appliance house sell 75% of the electric ranges—a 65-year-old firm sells 400 refrigerators a year without an outside salesman—to build a profitable service business simply managed . . . and many, many more solid, tested, and proven ideas to help you sell more goods more profitably. Over 600 pages crammed with sales and management ideas you can use TODAY! . . . \$5.95

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Name

Address City State

Manufacturers' Excise Tax Rulings--

(Concluded from Page 1, Column 2)

"That components . . . which are purely electrical conduction assemblies, which we call electrical wiring systems, are not subject to any excise taxes. We sell these systems to manufacturers of original equipment and do not sell them separately. We also manufacture and sell, separately, a special testing cord for testing refrigerators by servicemen. These are sold to servicemen."

"Do our products come under any category which would be subject to excise taxes?"

They do not, according to Charles J. Valaer, deputy commissioner, who states:

"It is held that electrical conduction assemblies and testing cords are not taxable refrigerator components under section 3405 (b) of the Internal Revenue Code, as amended, and no Federal excise tax will attach to your separate sales thereof."

ROOM AIR CONDITIONERS

Regarding air conditioners, a manufacturer brought up this point:

"We manufacture room air conditioners on which, of course, an excise tax is paid. Eventually we receive orders for spare parts. These parts might consist of a fan motor, a power switch, a starting capacitor for the compressor, a relay, a fan, or any of a number of similar parts which we might classify as 'replacements.' Statement No. 12 of the Treasury Department's ruling reads:

"Relays, overloads, capacitors, fan motors, and water valves are not taxable when sold separately."

"On the other hand, statement No. 14 says that when any of these articles are incorporated in the assembly of a taxable item, the manufacturer of the taxable item is liable for tax on his entire selling price thereof, including in the price any charges for the nontaxable components."

"Our question is: if a 'replacement' part is supplied to replace a defective or worn part on which a tax has already been paid, does this 'replacement' bear a tax?"

The ruling by Deputy Commissioner Valaer:

" . . . no Federal excise tax is im-

posed on the separate sales of a fan motor, power switch, starting capacitor, or relay. If the fan and other similar components are primarily designed and adapted for use as parts of air conditioning units, no tax will apply to the separate sales of such components."

DISPLAY CASES

On the subject of display cases and coolers, a third manufacturer raised these questions:

"It is our belief that refrigerated display cases of types, plus walk-in coolers and reach-in coolers of 25 cu. ft. and over are not taxable. Can you tell us whether this is a correct understanding?"

"Most of our cases are intended for remote installation. On certain models we do build compressors into our cases and use both open belt-driven type machines and sealed-type units. We believe that we should buy these units, which range in size from 1/4 hp. to 1 hp., free of any excise tax. Can you tell me whether we are correct in this interpretation?"

Following are the answers presented by Valaer, the deputy commissioner:

"A tax is imposed under section 3405(a) of the Internal Revenue Code, as amended, on mechanically operated household type refrigerators and quick-freeze units, and combinations thereof, sold by the manufacturer, producer, or importer."

"The term 'household-type refrigerators' includes refrigerators which (1) are designed for domestic use, (2) are arranged to provide refrigerated storage space for the preservation of food products or low-temperature space for making ice cubes and frozen desserts, and (3) have a net storage space not exceeding 14 cu. ft."

UNITS FOR CASES

"In view of the foregoing, refrigerated display cases of all types, and walk-in coolers of 25 cu. ft. and over are considered to be commercial types and not subject to Federal excise tax."

"Before a ruling may be issued with respect to your reach-in coolers, it will be necessary that you submit a complete description and an illus-

tration thereof, if available, such as may be contained in a catalog or circular."

"You also request advice as to whether condensing units of 1/4 hp. to 1 hp. which are built into your cases may be purchased tax free for such use."

"It is provided under section 3405 (b) of the code that the tax shall not apply in the case of sales of taxable refrigerator components by the manufacturer, producer, or importer to a manufacturer or producer of refrigerators, refrigerating or cooling apparatus, or quick-freeze units."

"The bureau holds that in order to purchase refrigerator components tax free, the manufacturer thereof must be furnished with an exemption certificate . . . by the purchasing manufacturer who must deal directly with the manufacturer of the taxable components. There is no provision of existing law or regulations authorizing dealers or distributors to sell taxable components free of tax to a manufacturer of refrigerators. However, no Federal excise tax applies to condensing units other than hermetic self-contained types of less than 1/4 hp."

(It should be noted that the above ruling was made prior to passage by Congress of the new tax law which permits a parts wholesaler to sell taxable components to a manufacturer without paying the tax, provided the manufacturer furnishes an exemption certificate.)

Cobbs Building Air Cooled

MIAMI, Fla.—The new air conditioned Cobbs office building in Miami Beach opened recently. Hill York Corp. had the contract for installation of air conditioning.

OPI Offers Releases on Selling To or Dealing with Govt.

WASHINGTON, D. C.—"Index of Military Purchasing Offices," a guide to industry in selling to military departments, is one of several informational releases available free on request to the Industrial Services Branch, Office of Public Information, Office of the Secretary of Defense.

Other releases are: "Fact Sheet on Contract Renegotiation"; "Fact Sheet on Defense Production Loan Guarantees"; picture sheets on "How To Obtain a Defense Contract"; booklet, "Questions and Answers on the Controlled Materials Plan"; and Munitions Board booklet, "Industrial Security Manual for Safeguarding Classified Matter."

Only a limited number of these releases are available.

NAED Opens New Offices In New York City

NEW YORK CITY—Formal opening of new and larger headquarters offices by the National Association of Electrical Distributors at Norway House, 290 Madison Ave., New York City, was held recently.

According to Chas. G. Pyle, executive director of the association, increasing membership and an enlarged staff necessitated the move.

The new offices are centrally located in the city, are completely air conditioned, and have an outstanding lighting installation incorporating the latest in lighting techniques and fixture design.

'52 Metals Supplies To Be Tight, AMC Confirms

LOS ANGELES—Mining executives attending the American Mining Congress convention here recently confirmed government reports that metals supplies are going to be tight next year.

In addition, to increased military demands, they attributed the shortage to unrealistic pricing policies by the government and high taxes that discourage expansion efforts by mining firms.

Pointing out that the government wants to pay less than the world price for copper in the foreign market and an even smaller sum to domestic producers, Samuel H. Williston, vice president of the Cordero Mining Co. said, "Normally about one third of our copper is imported. In the last year and a half, these imports have dropped by 50%. With domestic production up only slightly, we're getting about a sixth less copper."

On the subject of taxes, the president of a lead mining concern expostulated, "Why should I work like crazy to get the lead out of the ground and then pay out everything I make to taxes?"

"My company's operation is about four times as large as 12 years ago, yet profits are about the same."

Another mining official noted that exploration and development from 1940 to 1949 declined 95% on strategic metals, 90% on gold and an average of 75% on all metals. The decline, he said, is almost entirely due to national taxes.

What D'ya Know?

Try your memory on these clues about news and advertising. If you get the answer on the first clue, score 5; second clue, score 3; final clue, score 1. Excellent, 25-30; Good, 18-24; Fair, 12-17; below 12, Poor.

- (a) "No help needed" sign is put out by this manufacturer. (b) Cleveland concern makes copper and aluminum tube. (c) A viking ship is its trade-mark.
- (a) Refrigeration & Air Conditioning Contractors Association makes plea for trade practice rules. (b) Federal Trade Commission will consider petition aimed primarily at ice cream, beverage, and frozen food producers. (c) Text of petition appears on page 45.
- (a) Milwaukee manufacturer says the trend is to vertical home freezers. (b) Lists 11 reasons why. (c) Called the . . . Cold Shelf.

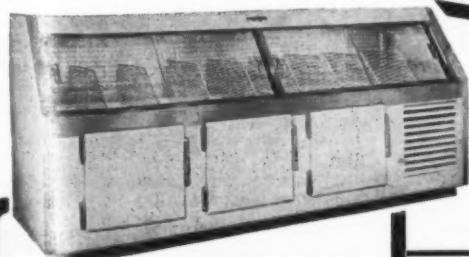
Answers:

1. (a) Viking Ship Co., Milwaukee, Wis. (b) Viking Ship Co., Milwaukee, Wis. (c) Viking Ship Co., Milwaukee, Wis. 2. (a) Refrigeration & Air Conditioning Contractors Association, Inc., 1400 N. Dearborn St., Chicago, Ill. (b) Federal Trade Commission, Washington, D. C. (c) Text of petition appears on page 45. 3. (a) Milwaukee manufacturer says the trend is to vertical home freezers. (b) Lists 11 reasons why. (c) Called the . . . Cold Shelf.

DEALERS - DISTRIBUTORS

Remember "513"

It's your *Lucky Number* to see our Vegetable, Produce and Dairy Products REFRIGERATED CASES. Free Souvenirs, Demonstrations, Literature.



- WORLD'S FASTEST SELLER
 - LIBERAL DEALER PROFITS
- Franchises still available in some areas. Write or wire for free literature.

See the **NOLIN MOISTURIZER**

BOOTH 513

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1100 MADISON AVENUE
MONTGOMERY, ALABAMA
PHONE 3-4454

Your Product Wiring Costs CAN BE REDUCED . . .
Uncompromising Wiring Integrity Maintained . . . with



How can your Costs be Reduced?

1. UNILECTRIC WIRING SYSTEMS are designed especially to simplify product assembly, reduce production time and put your in-plant labor to more effective use.
2. UNILECTRIC'S nine year, large volume material procurement history (Ex: 100,000,000 ft. of wire in 1951) provides invaluable supplier controls — reduces expediting and costly delays.
3. Modern high speed, automatic equipment and UNILECTRIC-designed assembly machines provide substantial production cost savings.
4. Constant improvement in production methods and skills — the result of specialized production engineering — assures steadily decreasing costs.
5. UNILECTRIC has developed new components which simplify wiring assembly and field servicing, and result in cost reduction.

How is Wiring Integrity —

Custom Quality — Maintained?

UNILECTRIC Wiring Systems give you *all* these factors necessary for complete *Wiring Integrity*.

1. Specialized wiring engineering experience that assures most efficient circuit design.
2. Selection of components that best meet overall application requirements.
3. Analysis of components to establish individual adequacy without waste.
4. Mass production techniques that assure quality control on hundreds of production sequences simultaneously.
5. Meticulous care in each assembly operation.
6. Supervision by personnel with wiring know-how.

COST REDUCTION and WIRING INTEGRITY are inherent in UNILECTRIC'S WIRING KNOW-HOW. They result from nine years of constantly serving hundreds of leading manufacturers of electrical and electronic equipment . . . and extensive current and World War II experience producing wiring systems for RADAR, RADIO, TANKS, FIRE CONTROL MECHANISMS, MOTORCYCLES, INSTRUMENTS and other Armed Forces equipment.

* If your Defense or Civilian Products require wiring of any kind, your costs can be reduced. Write for details or send us your blueprints today . . . Talk it over with us in Booth 209 at the Show.



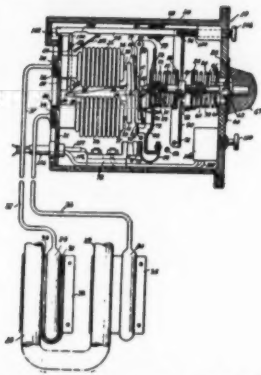
UNITED MANUFACTURING & SERVICE CO. • 407 SOUTH 6TH STREET, MILWAUKEE 4, WIS.

PATENTS

Week of Aug. 7 (Cont.)

APPLICATION FOR EXTENSION

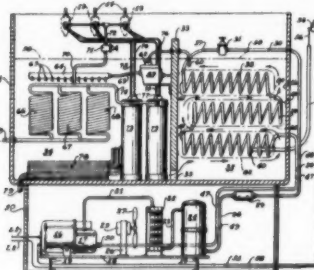
2,115,431. **AUTOMATIC DEFROSTING AND DEICING SYSTEM.** John J. Shively, New York, N. Y. Granted Apr. 26, 1938. 11 Claims. (Cl. 62-4.)



1. In combination with a refrigerating system including a cooling unit and means to operate the same, a temperature responsive element thermally connected to said cooling unit and thermally exposed to a fluid medium surrounding said cooling unit, a second temperature responsive element thermally connected to said cooling unit and thermally insulated from said surrounding medium, and means connected to said elements and controllable by the difference in temperatures of said elements to disable said operating means and controllable by the average temperature of said elements to cause said operating means to function.

Week of August 14

2,563,935. **REFRIGERATING APPARATUS, INCLUDING WATER CIRCULATING MEANS.** Kermit D. Huffman and Harold Sigafos, Phoenix, Ariz., assignors to The Mighty Midget Mfg. Co., Phoenix, Ariz., a corporation of Arizona. Application April 6, 1950, Serial No. 154,374. 1 Claim. (Cl. 62-7.)



In an ice storage refrigeration system having a water tank, a plurality of freezing coils submerged in said water tank extending horizontally and mounted one above the other, means for connecting said coils in series, means for mounting the input ends of each of said coils adjacent a wall of said water tank, refrigerating apparatus for energizing said coils to cause ice blocks to form on said coils, thermostatic control means for automatically regulating the size and extent of the ice blocks formed on said coils, and water pump means for causing the upward flow of water over said coils so that the water must move horizontally under the ice block of each of said coils in a labyrinth path until the water arrives at the top of said coils, means forming a second compartment, a passageway through the bottom of said baffle, said water pump means receiving fluid from the top surface of the water of said first mentioned compartment and discharging said water through jet means below the surface of the water in said second mentioned compartment, and liquid cooling coils in said second compartment located to receive the jet flow from the discharge from said water pump to effect a maximum heat transfer to said cooling coils.

2,563,938. **QUICK-FREEZE APPARATUS AND METHOD.** Cassius L. Kirk, Bozeman, Mont., assignor of one-third to George H. Ballantyne, San Jose, and one-

Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing office under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date. This will save time in filling your request. For reasons of economy, specifications are normally not included with the bid invitations unless the specification is a new one. First time bidders on a particular item should request a copy of applicable specifications and drawings at the time the request for a bid is made.

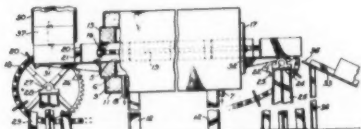
DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. Ordnance District Offices do not have information on any other purchases.

Invitations for Bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q" or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Aviation Supply Office, 700 Robbins Ave., Philadelphia, Pa.			
Valves, gate, composition, various types and sizes, specification 45 V 17, spec MIL V 1189	89300 ea	L 54171 B	13 Nov 51
Signal Corps Procurement Agency, 225 South 18th Street, Philadelphia 3, Pennsylvania			
Tubing, var		147-16-B	13 Nov 51
Commanding General, Ordnance Tank Automotive Center, Detroit, Michigan			
Tubing, cap, seamless, soft, anneal size 3/16" O.D., 188" thickness of wall 0.035"/in 100 ft. coils/7036787	215000	52-477B	23 Nov 51
Tubing, cap, seamless, soft, anneal size 7/16" O.D., 0.438" thickness of wall 0.035"/in 100 ft. coils/FSN-447-5080-27	58000	52-477B	23 Nov 51
Tubing, cap, seamless, soft, anneal size 1/2" O.D., 0.500" thickness of wall 0.049/in 50 ft. coils/FSN-447-5079-110	20000	52-477B	23 Nov 51
Chicago Quartermaster Depot, QM Purchasing Division, Chicago, Illinois			
Bain, Marie, Fed spec MIL-B 2377	216 ea	52-524 B	26 Nov 51
Cabinet, ice cream storage	100 ea	52-490 B	23 Nov 51
Cabinet, frozen food display	100 ea	52-490 B	23 Nov 51
Refrigerators, 65 cu. ft.	100 ea	52-524 B	28 Nov 51
Philadelphia District Corps Of Engineers, 121 N. Broad St., Philadelphia, Pennsylvania			
Fan, air circulating, desk and wall type, 110 volt, AC-60 cycle, 3 speed - oscillating, 16 inch	448	(ENG-36-109-52-75 B)	14 Nov 51
Fan, air circulating, desk and wall type, 110 volt, AC-60 cycle,	360	(ENG-36-109-52-75 B)	14 Nov 51

third to Roy M. Magnuson, Campbell, Calif. Application July 7, 1945, Serial No. 603,715. 10 Claims. (Cl. 62-173.)

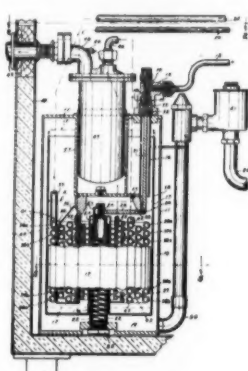


1. In a quick-freeze system for rectangular food packages, a refrigerating tunnel of rectangular cross-section for lengthwise progression of food packages therethrough and having opposed pairs of refrigerating walls for engaging the four side surfaces of a package, a track formed in a wall of said tunnel, and a conveyor for progressing a package through the tunnel including a propulsor for engaging the package and a drive element for said propulsor disposed in and traveling along said track.

2,563,973. **REFRIGERATOR CONTROL.** Edward R. Taylor, Rocky River, and Donald P. Armbruster, Cleveland Heights, Ohio. Application Oct. 31, 1946, Serial No. 706,913. 5 Claims. (Cl. 62-7.)

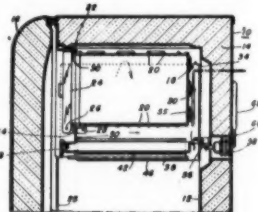
1. In a device utilizing a vaporizable refrigerant, the combination of chamber means for containing refrigerant vapor, a reservoir for liquid refrigerant in said chamber means, said reservoir being mounted for vertical movement as its weight becomes lighter or heavier, a liquid refrigerant supply for said reservoir including a control valve therefor, an operative connection between said reservoir and said valve for opening and closing said valve respectively by rise and fall of said reservoir, counterbalancing means operatively connected with said

reservoir for causing the latter to rise when the weight of said reservoir and its content of liquid refrigerant is less than



a predetermined amount, and fluid cooling coils in said liquid refrigerant within said reservoir.

2,563,975. **TWO TEMPERATURE REFRIGERATOR.** Raymond E. Tobey, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Sept. 24, 1948, Serial No. 51,050. 7 Claims. (Cl. 62-6.)



1. In a refrigerator comprising a thermally insulated cabinet having an access opening in the front thereof and a door for said opening, a cooling unit in the upper portion of said cabinet, said cabinet having a food storage area below said cooling unit, said cooling unit having a top, a bottom, a rear, and two side walls, at least one of said walls having refrigerant passages therein, said walls of the cooling unit defining a food storage space within said cooling unit, said two side walls of the cooling unit being spaced from the corresponding walls of said cabinet, duct means in said cabinet, said duct means comprising a first duct portion having an entrance opening communicating with said food storage area adjacent the side wall of the cabinet, said first duct portion being flat and lying adjacent one side wall of said cabinet and extending upwardly, a second duct portion similar to said first duct portion, said second duct portion lying adjacent the other side wall of said cabinet, a third duct portion lying between said first and second duct portions and communicating with the upper ends of said first and second duct portions, said third duct portion extending downwardly from said upper ends and containing said cooling unit, said third duct portion being closed at its lower end except for an outlet opening adjacent the rear wall of said cabinet, said outlet opening communicating with said food storage area, and a valve in

3 speed - oscillating, 16 inch Air conditioning unit-trailer mounted-self contained type-air cooled-gasoline driven-26500 B.T.U. water purification equipment (ENG-36-109-52-81 B) 16 Nov 51

Purchasing & Contracting Office, Camp Gordon, Georgia
Coolers, water, electric, 9 GPH 19 ea (09-057-52-12 B) 15 Nov 51
Coolers, water, electric, 18 GPH 185 ea (09-057-52-12 B) 15 Nov 51
Bid B. F.O.B. destination, 19 ea (09-057-52-12 B) 15 Nov 51
Coolers, water, electric, 9 GPH (09-057-52-12 B) 15 Nov 51
Coolers, water, electric, 18 GPH 185 ea (09-057-52-12 B) 15 Nov 51

Corps Of Engineers, U. S. Army, Office Of The District Engineer, Huntington District, 237 4th Ave., Huntington 18, W. Va.
Construction of refrigerated warehouse; paint, dope and oil storage; automotive shop; A.I.O. warehouse; A.I.O. shops and administration; guard house, bachelor officers quarters; airmens club; and officers mess, Youngstown Municipal Airport, Ohio (ENG-46-022-52-68B) 27 Nov 51

GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
General Services Administration, Seattle, Washington			
Temperature indicating equip. and accessories as specified	1 unit	E-2CR-98	11-6-51

U. S. DEPARTMENT OF COMMERCE

Description	Quantity	Reference No.	App. Bid Date
Chief, Procurement Branch, Civil Aeronautics Administration, 1200 Exchange Building, Seattle, Washington			
Filter, air, fiber glass, panel type, 10 x 10 x 1", Dustop No. 1	200 ea	752-8139	11-9-51
Dustop, fiber glass, 10x10x2"	572 ea	752-8139	11-9-51
Filter, fiber, glass, Dustop 1x10x20"	300 ea	752-8139	11-9-51
Filter, spun glass, 10x20x2"	36 ea	752-8139	11-9-51
Filter, air, 15x15x2"	18 ea	752-8139	11-9-51
Filter, Dustop, spun glass, 16x20x1"	36 ea	752-8139	11-9-51
Filter, Dustop, spun glass, 16x25x1"	24 ea	752-8139	11-9-51
Filter, Dust, spun glass, Dustop, 24 ea	24 ea	752-8139	11-9-51
No. 1-LR, 20x20x2", TZE			
Fiber, fiber glass, 15x20x1"	55 ea	752-8139	11-9-51

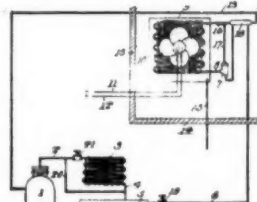
CONTRACTS AWARDED AS OF OCT. 25, 1951

Description—Contractor and Address

Headquarters, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio
Facilities for production of regulators and control instruments.—\$180,000.—Minneapolis-Honeywell Regulator Co., Minneapolis, Minnesota.
Ships Parts Control Center, Naval Supply Depot, Mechanicsburg, Pennsylvania
Valves and repair parts.—\$5,805 ea.—\$37,695.—Henry Valve Co., 3215 North Ave., Melrose Park, Ill.
Repair parts for refrigeration and air conditioning equipment.—Exceeds \$250,000.—York Corp., 1616 Walnut St., Philadelphia 3, Pennsylvania.
Department Of The Navy, Bureau Of Ships, Washington 25, D. C.
Centrifugal fans.—192 ea.—\$183,309.—Stone Heating & Ventilating Co., Washington, D. C.

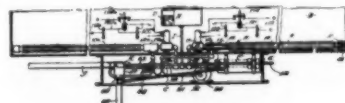
said outlet opening for controlling the flow of air therethrough.

2,564,310. **MEANS FOR CONTROLLING THE HEAD PRESSURE IN REFRIGERATING SYSTEMS.** Otto J. Nussbaum, Trenton, and Frank C. Obert, Nutley, N. J., assignors to Kramer Trenton Co., Trenton, N. J., a corporation of New Jersey. Continuation of application Serial No. 756,050, June 20, 1947. This application Oct. 5, 1950, Serial No. 188,522. 13 Claims. (Cl. 62-3.)



6. Apparatus of the character described comprising, a compressor, a condenser, a receiver connected with the condenser to receive refrigerant therefrom, an evaporator, a conduit connecting the receiver with the evaporator for supplying refrigerant to the latter, a conduit connecting the evaporator with the compressor for returning refrigerant to the latter, a conduit for the flow of refrigerant connecting the discharge of the compressor with the condenser, a conduit for the flow of refrigerant connecting the discharge of the compressor with the receiver, and means for regulating the proportions of refrigerant flow through said two last named conduits.

2,564,344. **COMBINED HEATING AND COOLING SYSTEM.** Edward A. Russell and Timothy J. Lehane, Chicago, Ill., assignors, by mesne assignments, to Vapor Heating Corp., a corporation of Delaware. Application July 26, 1947, Serial No. 763,878. 4 Claims. (Cl. 257-3.)



1. An apparatus for heating and cooling an enclosed space comprising a heat radiating and absorbing unit located in said space, a loop conduit containing a quantity of liquid, a pump interposed in said conduit for circulating the liquid therethrough, a pressure actuated valve interposed in said loop to divide it into a high pressure supply side and a low pressure return side, branch conduit connections leading from the inlet and outlet of said unit and connecting in the said high and low pressure sides of said loop, whereby a portion of said liquid may pass through said unit, means defining a heating chamber and means defining a cooling chamber connected in series in the pressure side of said loop, means responsive to predetermined temperatures in said space to make said chambers individually effective to alter the temperature of said liquid, an electrically energized admission valve for controlling the admission of liquid into said unit, and means responsive to the temperature in the space for controlling the energization of said admission valve.

(To Be Continued)

Mary Lou Welshmeyer
In I-H Home Economist Post
In Aurora District

CHICAGO—Mary Lou Welshmeyer has been appointed home economist for the Aurora district of International Harvester Co., it was announced here by O. T. Anderson, refrigeration representative for the central region.

Miss Welshmeyer, formerly Indianapolis district home economist, will conduct frozen food demonstrations for dealers as well as contacting various trade accounts and educational institutions.

At Last!

"Stories of the Week"

In Handy Form



In response to hundreds of requests from AIR CONDITIONING & REFRIGERATION NEWS subscribers, the conductor of its "Inside Dope" column has collected and grouped his best "Stories of the Week." They are now available in convenient book-form for your reading and working pleasure. The book is entitled: "You'll Love This One."

Everyone will enjoy reading this book, we hope, but for the salesman—and for anyone who may be called upon to "say a few words" at a meeting—it should have especial appeal.

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While waiting in an ante-room to see Mr. Bigdome, the sales representative can thumb through it and pick out four or five pertinent jokes which are guaranteed to put his prospect in a good mood.

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Within its 236 thin-paper pages more than 200 sure-fire laughs are presented. You can use it profitably, and so can your friends. It's handsomely turned out, and will make an appreciated Christmas present.

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11-5-51

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11-5-51

ACRMA-REMA Summary of Compressor Shipments for July

ACRMA-REMA STATISTICAL PROGRAM

SUMMARY OF SHIPMENTS OF COMPRESSORS FOR JULY, 1951

(Number Manufactured and Sold for Refrigerants Other Than Ammonia)

Horsepower	SEALED TYPE (Hermetic or Closed)					OPEN TYPE, AIR COOLED					OPEN TYPE, WATER COOLED				
	FORM A					FORM B					FORM C				
	Continental U. S.					Continental U. S.					Continental U. S.				
	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	Export (Q)	Grand Total (R)	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	Export (Q)	Grand Total (R)	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	Export (Q)	Grand Total (R)
Sold In Unitary (End-Use) Products															
1/2 & less	XX	XX	16,005	1,056	17,061	XX	XX	*	*	XX	XX				
3/4	XX	XX				XX	XX	*	*	XX	XX				
1	XX	XX	4,227			XX	XX	*	*	XX	XX				
1 1/2	XX	XX				XX	XX	*	*	XX	XX				
2	XX	XX				XX	XX	*	*	XX	XX				
3	XX	XX				XX	XX	*	*	XX	XX				
5	XX	XX	4,873	855	10,750	XX	XX	*	*	XX	XX				
Sub-Total	XX	XX	25,900	1,911	27,811	XX	XX	*	None	*	XX	XX	795	89	884

Sold as Compressor Bodies, Compressors, or Condensing Units

1/2 & less					609	429	1,038	1,170	2,208						
3/4					749	649	1,398	1,210	2,608	54	170	387			
1					228	1,328	1,556	691	2,247						1,247
1 1/2					114	538	652	163	815		163			257	
2					276	385	661	252	913	399	204	603			
3					13	318	331	146	477	144	260	404			1,461
5					298	325		238			225			187	
Sub-Total	107,841	2,051	109,892	10,878	120,770	2,287	4,117	6,404	4,092	10,496	718	1,484	2,202	506	2,708
Grand Total	XX	XX	135,792	12,789	148,581	XX	XX	*	4,092	*	XX	XX	2,997	595	3,592

*Figures omitted to avoid disclosure of operations of individual companies. Notes: Totals shown above do not include compressor bodies shipped for or incorporated in Household Refrigerators. In order to avoid disclosing the operations of individual companies, some data for two or more sizes of units are combined.

Reporting companies: Airtemp Div., Chrysler Corp.; Baker Refrigeration Corp.; Brunner Mfg. Co.; Carrier Corp.; Curtis Refrigerating Machine Div. of Curtis Mfg. Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; General Machine & Mfg. Co.; Kelvinator Div., Nash-Kelvinator Corp.; Lehigh Mfg. Co., Div. of Lehigh Foundries, Inc.; Lynch Corp.; Mills Industries, Inc.; Norge Div., Borg-Warner Corp.; Servel, Inc.; Tecumseh Products Co.; Universal Cooler Div., Tecumseh Products Co.; Westinghouse Electric Corp. (Springfield and Hyde Park [Boston], Mass.); Worthington Pump & Machinery Corp.; York Corp.

Cory Corp. Appoints Thomas Payton as Commercial Div. Asst. Sales Mgr., Walter Rogers, National Service Mgr.

CHICAGO—Appointment of Thomas Payton as assistant sales manager for the commercial equipment division of Cory Corp. here, and of Walter W. Rogers as national service manager for the newly consolidated service department for the corporation and its divisions was recently announced by J. W. Alsford, president.

Payton, formerly service manager for Cory Corp., will now serve in the national sales and promotion of Cory coffee brewing equipment in the commercial, restaurant, and institutional fields.

Before joining Cory, Payton was a test flight engineer with Douglas Aircraft, Park Ridge, Ill.

Rogers was formerly assistant service manager for Cory Corp. In his new position he will supervise the main service department in the Chicago plant and the network of 315 national service stations which have been reorganized to handle service for all of Cory, Fresh'nd-Aire, Nicro, and Flavor-Seal products.

Prior to joining Cory, Rogers was production manager for Midwestern Die Casting Co. Previously he had been employed by Berco Machine Co.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words. Other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

EXPERIENCED AIR conditioning & refrigeration mechanic would like to work in Brazil or Argentina for an American contractor. Age 35, single. BOX 3852, Air Conditioning & Refrigeration News.

SIXTEEN YEARS' experience refrigeration, air conditioning wholesaling. Have served in all phases, executive, sales, purchasing. Age in middle thirties, good appearance, well known in metropolitan New Jersey and New York. Wanted, position that pays well, and where talents can be utilized in a productive capacity, sales or otherwise. Prefer connection with a solid manufacturer. BOX 3853, Air Conditioning & Refrigeration News.

SERVICE ENGINEER—Available Dec. age 39, married with two children. 20 years' experience in low pressure refrigeration and air conditioning—service, installation, shop, manufacturing, engineering, drafting etc. Desire connection with dealer distribution, independent service organization or manufacturer. Would prefer to locate in the Rocky Mountain Area—will travel. BOX 3854, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

MANUFACTURER'S REPRESENTATIVES wanted. Complete line of refrigerated store fixtures, including latest design self-service models for super markets. Contact dealers, distributors and food chains. Our sales program for 1951 provides for the establishment of representatives in several desirable territories in United States. Have attractive proposal. Write us or visit our display at All-Industry Show in Chicago. Booth 101. FEDERAL REFRIGERATOR MFG. CO., P. O. Box 465, Waukesha, Wisconsin.

50 YEAR OLD mfr. of refrigerated store fixtures offers exclusive sales deal to representatives handling allied equipment. One of most complete lines in the industry. Sold thru commercial refrigeration dealers. Territories available are (1) Carolinas, Virginia (2) Texas, Western La. (3) Arizona, New Mexico, Western Texas (4) Colorado, Wyoming, Utah. FOGEL REFRIGERATOR COMPANY, 5400 Eadom St., Phila. 37, Pa.

COMMERCIAL REFRIGERATOR salesman to handle Warren refrigerator dealer and chain accounts in Ill., Mich., Ind., Wis. Must have experience our industry. THE WARREN CO. INC., P. O. Box 1456, Atlanta 1, Ga.

SALES ENGINEERS with refrigeration and air conditioning experience wanted by leading manufacturer of Lowside Equipment. Several excellent midwestern territories available. Send resume and background to BOX 3857, Air Conditioning & Refrigeration News. Interviews will be arranged in Chicago during All-Industry Show Week of Nov. 5.

OLD, ESTABLISHED, nationally known manufacturer of complete line of quality refrigerated display cases (self-service and service), walk-ins, reach-ins, etc., has one each distributor in Iowa, Missouri, Kansas, Arkansas and Oklahoma needing experienced producer who can sell food markets, restaurants, etc. Draw if desired. Opportunity unlimited. Give complete background and earnings record. All replies confidential. Address BOX 3841, Air Conditioning & Refrigeration News, or phone W. L. Winchester, LaSalle Hotel, Chicago, November 5th to 9th for personal interview.

SALESMAN, AIR conditioning. Accustomed to earnings over \$10,000. Established Carrier distributor, midwest. Powerful advertising, continuous sales promotion, full line, excellent inventory. Permanent position, open to top man only. Interview at our expense. Write full details, BOX 3848, Air Conditioning & Refrigeration News.

SALES ENGINEER with experience in heating and air conditioning wanted by national manufacturer for New York City territory. Splendid financial opportunity for right man. Send complete background first letter for early interview in New York City. Write BOX 3855, Air Conditioning & Refrigeration News.

WATER COOLER manufacturer will open branch sales office in Boston and cover N.E. wholesale distributors. Applications from qualified persons kept confidential. Give experience and starting salary expected first letter. BOX 3856, Air Conditioning & Refrigeration News.

WANTED REFRIGERATION engineer. Leading manufacturer of refrigeration units and compressors, located in middle west, has opening for a graduate engineer with several years' actual experience in the testing laboratory. Must be experienced in complete testing of both belt driven and hermetic type condensing units and compressors. Must have a thorough background and experience with electrical problems of hermetic units. This position is permanent and an excellent opportunity for right man. No one need apply unless they can fill all of these qualifications. Give complete history, references and expected salary in first reply. All replies will be held strictly confidential. BOX 3857, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE: One 10-inch, two 9-inch, one 4-inch ammonia compressors with electric motors and starters; one 22 hundred sq. ft. condenser; one 30" x 16" receiver; one approx. 58 ton water cooler; two Der 150 flake ice makers; one 67 thousand C.F.M. air circulation fan with motor and starter, used in conjunction with one set cooling coils consisting of approximately 7600 lineal feet 3/4-inch pipe with fins. All York equipment. New 1950. BATES & ROGERS CONSTRUCTION CORP., 600 W. Jackson Blvd., Chicago, Illinois. Telephone, State 2-0793.

REFRIGERATOR DOORS, 3'6" by 6'6" double batten auto close doors complete with removable track heads for a 7'2" track. 1 1/2" corkboard insulation. 16 gauge metal clad. Brand new. \$95.00 each. Freight prepaid in U.S. Door height will be altered for anything up to 11 ft. 2 in. track for \$15.00 additional. BIMEI CO., Cincinnati, Ohio.

WE HAVE quit the ice business and offer for sale, 676 ice cans—76 brand new, 350 used cans in good condition, 250 in fair condition. 11 inch by 22 inch at top; 10 inch by 21 inch at bottom; 50 inch deep outside; 16 gauge galvanized. Write for further specifications. Will accept any reasonable offer. A. Kraakevik, Purchasing Dept., ILLINOIS POWER COMPANY, Decatur, Illinois.

SURPLUS INVENTORY 350 1/2 H.P. Motors 115 volt D.C. 1750 RPM equipped with manual reset motor, overload protector and automatic belt tightener. \$21.00 each for all or part. NASH-KELVINATOR CORP., Purchasing Department, 14250 Plymouth Rd., Detroit 32, Michigan, Attention: W. R. Stowe.

FOR SALE—Standard makes-new hermetic units—static & fan-cooled cond. 1/4, 1/2, 3/4, 1, 1 1/2. Open units 1/2, 3/4. Relays and overload protectors. Driers, T.X.V. valves, pressure controls, belts, fittings. Water-cooling coils for carbonated water. Send for your lists and prices on our many other parts and supplies at great savings. Sold on money back guarantee. WALTER W. STARR, 2833 Lincoln, Chicago, Ill.

BUSINESS OPPORTUNITIES

AIR CONDITIONING contractor in New York City with valuable franchise annual volume \$250,000 seeks experienced sales engineer with contacts to buy interest or will merge with another contractor to consolidate overhead. BOX AC 1890, 221 W. 41 St., N. Y. City.

FOR SALE: Well established commercial refrigeration business located in Central Florida and handling only national known brands. Easy terms can be arranged. BOX 3850, Air Conditioning & Refrigeration News.

FOR SALE: Commercial refrigeration business in northern New Jersey. Lines include store fixtures, air conditioning and allied equipment. Franchised by manufacturers of nationally advertised products. A going business established over 16 years. Priced for quick sale. BOX 3851, Air Conditioning & Refrigeration News.

MISCELLANEOUS

"SEALED UNIT Rebuilding-Basic Tools & Methods" now in its third and final printing. This course of trade secrets gives complete information on equipping a shop to handle this work. Information found nowhere else. \$12.50 while supply lasts or write for details. M. CUSTER, Box 98, Center Line, Michigan.

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Air Conditioning & Refrigeration News

At your request, AIR CONDITIONING & REFRIGERATION NEWS is featuring reprints of articles which have appeared in the NEWS. Each is a virtual treasure chest of information and new ideas. You'll agree they're easy to understand and a pleasure to read... worth many times over their small price.

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OFF THE CHEST

HOW DOES ONE GET PARTS UNDER CMP?

Wallace Johnston Appliances, Inc.
Memphis, Tenn.

Editor:

We are seeking your help in interpreting the many regulations affecting us as a parts department of a large appliance firm.

Our sales are made at retail to the user and at wholesale to other dealers and servicemen. We also supply our firm's own large service department with all parts and material used by them on installation of major appliances sold by the store plus their service work "In Warranty." They also use parts in repair of trade-in items.

What we need to know is this—what specific parts of the regulations tell us how to establish quotas of MRO for operating maintenance of the plant? What regulation governs the manner in which we determine our quotas as a parts department for purchases of copper coil and copper range connectors, rubber covered cord, and other "controlled" items? How do we get priority numbers from our customers to replace our inventory? What records must we keep and in what form?

FRANK NOVITZKI

Answer:

The answers to your problems are found in CMP Regulations 5 and 7, copies of which are easily obtained.

How to establish MRO quotas for operating supplies in your plant is found in Section 7 of CMP 5, while Section 8 tells what to charge against this quota and Section 9 tells what to do about materials obtained for the benefit of another.

CMP 7, Section 3, tells you how much controlled materials you can buy for repair work. For this you use the RE rating and not the MRO. You use the RE rating to replace your inventories when doing work on domestic units for individuals. They cannot extend ratings to you. When doing the work for another business concern, you are entitled to use the MRO quota of that concern as provided in CMP 5, Section 9, and CMP 7, Section 3 B. The customer certifies that his order is in accordance with CMP 5 and you can extend this rating to get the materials needed to fill the order.

The records you must keep are listed in CMP 5, Section 14, and CMP 7, Section 9.

If you have further questions on this, you should contact your NPA field office which is located in room 229 of the Federal Bldg. in Memphis.

EDITORS SHOOTING TOO MUCH (JET BLAST) AIR

United States Air Conditioning Corp.
Minneapolis, Minn.

Editor:

In your "What's New" page, you indicate a jet blast blower under key No. A-943. An obvious mistake has taken place since it is mentioned as handling 10,000 c.f.m. which, of course, means cubic feet of air per minute.

From the illustration, the outlet flange of this particular unit cannot be more than 1 1/2 in. in diameter which would actually amount to a velocity of air leaving the blower at 795,000 feet per minute or something like 9,000 miles per hour. Perhaps, you mean 100 c.f.m. but most assuredly not 10,000.

L. P. HANSON

Answer:

Many thanks for calling our attention to the glaring error in the article describing the new jet blower (Key No. A-943).

It probably should have read 10,000 f.p.m. instead of c.f.m. Actually, the data received from the manufacturer states: "Delivers 10,000 feet air per minute."

That is not the precise way to express it, of course, because it would generally be assumed to mean quantity and not velocity. At least, that's the way our man took it, although he undoubtedly should have stopped to reconsider.

We're pleased to observe one thing, however. You certainly must go through the NEWS with a fine-toothed comb the same way that most of our many thousands of subscribers do.

CONVERTED ROOM COOLER ARTICLE REQUESTED

Bassett Refrigeration Co., Inc.
Appleton, Wis.

Editor:

As a subscriber to the AIR CONDITIONING & REFRIGERATION NEWS, some time ago we noted where I believe a Frigidaire dealer converted room coolers for use in an operating room in a hospital.

I am wondering if you can find this issue for us and forward it to us or if there is any way we can secure any information on how to convert room coolers in this way.

E. W. BASSETT

Answer: The story to which you refer, covering the adaption of room coolers for use in an operating room in a hospital, was published in the May 21, 1951 issue of the NEWS.

Outlook Good for Refrigeration Mechanics--

(Concluded from Page 1, Column 3) concentrated in cities where the trade is organized and men become journeymen mechanics by serving apprenticeships. Even in good times there are usually many more applicants for apprenticeship than can be taken on."

The publication is a new 575-page edition of the *Occupational Outlook Handbook*. It was prepared by the U. S. Department of Labor's Bureau of Labor Statistics in cooperation with the Veterans Administration, and covers 433 occupations.

Outlining the type of work done by refrigeration mechanics, the handbook points out that such mechanics "install and service large self-contained refrigeration and air conditioning units of the types used in such places as food stores and restaurants. They must know refrigerants and how to repair compressors, condensers, pumps, and other equipment."

"Central systems, such as those used in theaters, factories, office buildings, and cold storage warehouses use a good deal of piping, electrical, and sheet metal ductwork. This type of installation requires the services of craftsmen such as sheet metal workers, pipefitters, and electricians in addition to the refrigeration specialists."

"The stationary engineers who maintain the big central systems and men who repair only household refrigerators are not covered by this report."

"Mechanics usually work for heating, refrigeration, or air conditioning contractors and for companies

Excise Tax Markup Can Apply Only to Goods Bought After Nov. 1

WASHINGTON, D. C.—The Office of Price Stabilization has announced that higher ceiling prices to reflect the new excise taxes cannot be applied to merchandise in stock prior to Nov. 1. They will apply only to goods received by retailers and wholesalers at the new rates.

Manufacturers who do not list their excise taxes separately but include them in the total price for their merchandise are permitted to increase their ceilings by the amount of the tax, the agency also indicated.

that sell and service large self-contained refrigeration and air conditioning units. Many are in business for themselves as contractors. Some mechanics are employed by manufacturers of refrigeration and air conditioning equipment."

DISCUSSES HOW TO ENTER THE TRADE

Discussing how to enter the trade, the publication said:

"The usual way of becoming a mechanic is to serve a 5-year formal apprenticeship in programs jointly supervised by unions and employers. In areas where the trade is not organized, shop helpers and assistants frequently learn the trade by working on the equipment over a period of years."

"Sometimes men who repair household refrigerators are given an opportunity to learn how to install and repair the larger equipment. Young men are usually preferred for apprenticeships and other beginning jobs, but age requirements are frequently waived for veterans."

"In some cities mechanics are required to have licenses. Many cities require that refrigeration contractors be licensed."

EMPLOYMENT OUTLOOK

The handbook next takes up the employment outlook.

"The total number of men employed as refrigeration and air conditioning mechanics will increase over the long run, owing to expanding use of commercial and industrial refrigeration and air conditioning equipment," it is predicted.

"An increasing number of mechanics will be needed to install and repair air conditioning equipment—mostly for commercial users. . . . Air conditioning systems for private homes are still too costly for all except the comparatively small number of high-income families."

"Industrial process air conditioning and refrigeration will also employ more and more men. Employment on commercial refrigeration, ranging in size from walk-in boxes to cold storage warehouses, will have an upward trend for many years to come."

EARNINGS AND WORKING CONDITIONS COVERED

Regarding earnings and working conditions, the handbook says:

"Separate earnings information for air conditioning and refrigeration mechanics is not available."

"However, minimum union wage rates for pipefitters in major cities on July 1, 1949, ranged from \$1.90 to \$3 an hour; from \$1.50 to \$3 for electricians; and from \$1.75 to \$2.75 for sheet metal workers."

"Apprentices generally start at less than half the journeyman's rate. They get increases after each 6 months and after completing their apprenticeships get the journeyman's rate."

"Many mechanics, especially in large cities, are represented by the United Association of Journeymen and Apprentices of the Plumbing and Pipe-Fitting Industry. This union, the International Brotherhood of Electrical Workers, and the Sheet Metal Workers' International Association represent most of the workers who install and repair air conditioning and refrigeration systems."

"Except in the southernmost regions of the United States the demand for repair services and new installations is seasonal. During peak summer months overtime work is common."

Readers of the handbook interested in further information are referred to the three unions and local air conditioning and refrigeration contractor associations.

Heads REMA--Show Sponsor



W. A. SIEGFRIED

President of Superior Valve & Fittings Co., Siegfried is also president of Refrigeration Equipment Manufacturers Association, the association which sponsors the All-Industry Show.

M-H Net Profit Drops But Sales Are Up In Third Quarter

MINNEAPOLIS—Though third-quarter sales of the Minneapolis-Honeywell Regulator Co. gained slightly over last year, its net income dropped sharply, the company reported recently.

Sales totaled \$30,556,689 for the 1951 quarter and \$30,401,920 in 1950.

Sunbeam's \$6 Million Suit Charges Macy Conspired To Monopolize N.Y. City Sales

NEW YORK CITY—A new battle in the war between nationally advertised brands and private brands flared up last week when Sunbeam Corp., manufacturer of Mixmaster food mixers and other appliances, filed a \$6,000,000 damage suit against R. H. Macy & Co. and four Macy officers charging unfair trade practices and conspiracy to monopolize Sunbeam sales in the New York market.

Sunbeam asked the U. S. District Court here to "restrain further acts of Macy, its officers and directors tending to restrain and monopolize the trade in Sunbeam appliances and from cutting prices below the level which the average small stores must charge in order to handle Sunbeam appliances at a profit."

SUNBEAM CHARGE

Sunbeam charged that the price war precipitated by Macy's last May 29 has cost Sunbeam \$2,000,000 in damages. Macy, the suit asserted, cut Sunbeam prices below the wholesale level to capture 56.2% of the sales in the New York market during the 10-week war. Macy's normal share is about 3.3%.

Since then, the manufacturer further charges, Macy has "conspired to restrain and destroy trade in Sunbeam appliances by selling them for prices erratically fluctuating below the point at which Macy's competitors can resell them."

Having done this, Sunbeam added, "Macy suppressed their display and

sale and thereupon vigorously promoted the sale of its private brands."

Macy was also accused of "maliciously" inducing other Sunbeam dealers "who have signed Sunbeam's lawful fair trade contracts to resell to Macy's in violation of these contracts."

SEEKS FURTHER ACTION

In addition to the injunction mentioned above, Sunbeam asks that Macy be restrained from using the goodwill or trade-marks of Sunbeam in connection with advertising of its "6% less for cash" policy or any other unauthorized use of them. This is an unlawful appropriation of Sunbeam's common law property rights.

Macy should also be enjoined from inducing other distributors of Sunbeam products to violate their fair trade contracts, Sunbeam said.

In a statement issued by Sunbeam in connection with the suit, the Chicago manufacturer asserted:

"Sunbeam alleges that the giant retail organizations control the great majority of sales of 'over the counter' merchandise throughout the United States."

"Because of their vast economic power, when they engage in price cutting acts, such as those of Macy in this case, they tend to restrain and destroy the competition of nationally advertised brands, and force into sweat shop conditions the small retailers who now sell such products with the aid of the manufacturer's goodwill and trade-marks."



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